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**CODES**  
**MASTER 1-3200, PART 2**  
page 109

# The National Locksmith®

April 1995  
Volume 66, No. 4

Putting 'em to the test...

**Locksmith locks  
VS.  
Home Center locks**

Starts on page 38

**A L S O**  
**MINI-SECTION**  
**Locksmith Schools**  
page 57



# CONTENTS

April 1995 • The National Locksmith • Vol. 66, No. 4

## FEATURES

15

### The 1993 To 1995 Mazda RX7 Ignition

Mazda's sidebar ignition.

23

### The Schlage Primus

25

### The 1995 Saturn

See the new lock changes.

29

### Four Factors In CCTV Selection

38

### I'll Huff & I'll Puff...

Door hardware makes a difference.

46

### Stay Within The Lines

50

### A New Heavy Weight Contender

The new B600, B700 and B800 deadbolt.

57

### Locksmithing Schools

59

### Doin' It With Best/ Falcon Part 3

The equipment and the customer.

70

### Same Skills, Less Time, More Profit

More profits by going wireless.

75

### No, I Don't Do Alarms

Monitoring residuals.

87

### Lock In On Hotel Profits

Hotel locks and solutions.

100

### Taming The Hardware Jungle

Servicing vertical rod devices.

104

### Field Accessories For The Automotive Professional

Automotive tools for the field.

**CODES** 109

### Master

1-3200, Part 2

## DEPARTMENTS

5

COMMENTARY

6

LETTERS

20

NEWSMAKERS

36

BEGINNER'S CORNER

66

BUSINESS BRIEFS

68

THE LIGHTER SIDE

91

TECHNITIPS

98

BITS & PIECES

107

THRU THE KEYHOLE

115

INDUSTRY MEETINGS

120

INDEX OF ADVERTISERS

122

TEST DRIVE

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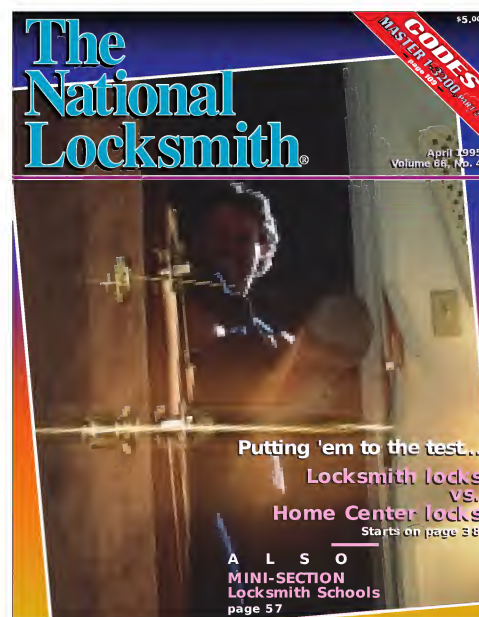
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### On The Cover

The National Locksmith Test Lab puts the good and not so good to a real test.



# COMMENTARY

## Testing hardware... with a forklift!

I t's not often that the total maniac in me comes loose! Recently, however, I had the chance to act out a childish fantasy.....after all, wouldn't we all like to kick in doors and drive trucks through the front door of a building?

I suppose I should explain. This month, we decided we really should put some hardware to the test. No, I don't mean some boring UL type test with a bunch of nerds standing around in lab coats with slide rules.

I mean, an honest, field condition test complete with large men wearing steel toed boots and waving pry bars. After all, that's the typical guy just itching to break into your home anyway. Managing Editor Tom Seroogy and I zipped over to the nearest home center prepared to purchase the house brand locksets. We were pleased to find a deadbolt for about twelve bucks! It was real shiny and everything! After all, isn't that what the consumer wants? Cheap and shiny.

We also purchased the materials needed for Tom to prove his skills as a carpenter. We constructed a door frame, hung the steel door we purchased, and installed the cheap but shiny hardware. The next step was to find a large man to try and compromise the door.

Since Dale Libby lives in the vicinity, of course he was the logical choice. After all, Dale may just be the largest man I know. So he was good enough to come over, kick the door for us, as well as write up the whole event in this issue. (See page 38.)

I won't steal Dale's thunder by telling you too much about what happened. However, I will tell you that we also installed some decent hardware and reinforcement products on a second door. That's when I finally got to get a little crazy. We just could not break through that second door using any conventional means.

Not one to tolerate frustration for a long period of



**Marc Goldberg**  
Editor/Publisher

time, I began to look around wildly after a number of well placed kicks failed to open the reinforced door frame. Hmmm, there was no weapon in sight which might prove helpful.

My eyes swept around our combination warehouse-hardware test lab area. Looking past the forklift, I sought any heavy object which we might be able to heave through our poor, abused door. Forklift? Did I say forklift?

I felt my cheeks flush and my eyes light up with the sort of gleam normally seen only in convicted ax murderers.

"Everyone move out of the way!" I shouted, jumping upon the forklift in my best Errol Flynn impression. I truly felt like a swashbuckler as I revved up the engine and headed for that darned door!

Then, all of a sudden.... Well, I begin to surpass myself. I shouldn't give away the ending. Read the article and get the whole story. Now if I could only enter this year's Demolition Derby!

**F**rom the Oops Department. In a recent issue, we mentioned that the cost of Mas-Hamilton's X0-7 lock is around \$1,200 retail. The actual cost is somewhat lower than that figure and we apologize for any inconvenience.

*Marc Goldberg*

**America Online: NATL LOCK**

Use the above address if you are on AOL.

**Internet: natllock@aol.com**

Use the Internet address if you are not on AOL.



# LETTERS

## Comments, Suggestions and Criticisms

**The National Locksmith** is interested in your view. We do reserve the right to edit for clarity and length. Please address your comments, praise, or criticism to Editor, **The National Locksmith**, 1533 Burgundy Parkway, Streamwood, IL 60107. (Or E-mail us at the E-mail address below.)

### America Online: NATL LOCK

Use the above address if you are on AOL.

### Internet: natllock@aol.com

Use the Internet address if you are not on AOL.

### Reader Starts Library

Dear Marc:

I have a tip for locksmiths who remember an article, but are intimidated by the stacks of trade magazines in their shop.

I use a shareware program by the name of Book Librarian and enter each article in as a separate "book." Then when I need info for a job I start the program, enter the subject and press find. I receive a nice list of titles that contain my search subject.

This program should be available on most online services. Look at AOL and upload it into The National Locksmith's online software library.

Steve McPheters  
Via E-Mail

### In-House Addition

Dear Marc:

Just a few words from an in-house locksmith. We out here in this industry have been a silent minority in the Locksmithing profession. I have wanted to write and express my opinion on a few articles that have been published of late, but was too lazy. I normally read your magazine cover to cover but seldom have I read all of your commentaries, I am glad I did this month. Keep up the good work.

Dick Solomon  
Via E-Mail

## Security Certificate Testing

Dear Marc:

I think you have a good program going with your Security Certificate testing, as I read closer instead of just scanning over them. Amazing sometimes what we miss by scanning an article instead of really reading. Keep up the good work. Being available online is one way you are staying ahead of the others. Thank you.

Don  
Via E-Mail

Editor's Note:

When you are capable of receiving electronic mail, please send me your electronic address so we can send you news flashes as we have done for this subscriber.

### One More Online

Dear Marc:

I received my January issue of The National Locksmith yesterday and wanted to let you know we are online. I have been a locksmith for 13 years in the San Francisco Bay area. I have spent most of that time in general locksmithing specializing in safes and access control. Now I am working for a large access control company quoting and installing electric lock hardware.

Let me know if I can do anything for you. I think it's great that we have a new way to communicate in this fast moving day and age.

Jeff M atteson  
Via E-Mail

### Thanks For Warning

Dear Marc:

I appreciate your hard work as editor, and this kind of word makes belonging to such an organization as NLA worth it.

I have continually wondered about

products from American Tool Co. and whether I should add them to the tool box. And now I know not to buy them from American Tool Co. Thanks again.

Handsome S  
Via E-Mail

Editor's Note:

Not long ago we repeated our warning about American Tool Co. and their tryout keys since we have received so many complaints. We flashed this warning again to locksmiths who have registered with us on our E-Mail list. Here are some responses we received.

### Newsflash Beneficiary

Dear Marc:

Thanks for the Newsflash, I printed it up to keep Precision Lock & Key updated. I think that The National Locksmith is breaking new ground in the locksmithing area. Keep up the great work and the great magazine!

MasterLock  
Via E-Mail

### Computer Locksmiths Ahead On Warnings

Dear Marc:

Thanks for the info, I have been reading about this company in several locksmith mags, and I really think that it would be a case for "false advertising," not to mention the U.S. Postal Service could step in and advise him about the law of misleading the public on false presentations. There is also the Better Business Bureau in the

#### Taxes:

*"The income tax has  
made more liars out of  
the American people than  
gold has."*

*-Will Rogers*



state that he's doing business. And of course, let's not but forget the Attorney General of his town/ city.

I usually buy my depth keys from Aero Lock out of Memphis, Tennessee. They are real good about their service to me so far.

Again, thanks for the info. By the way, has there been many Computer Locksmiths sign on yet? Here in Arkansas, I have been trying to get one locksmith company to go computerize, and I have even told them I'd teach them anything they need to know about one, but so far... they've got too many things going at once to take me up on it. I figured if they could teach me more on locks, I could teach them a lot on computers.

MasterLock  
Via E-Mail

### Looking Forward

Dear Marc:

Glad to have you online - it's been a long time coming. I will be looking forward to many great things from you guys within the limits that security considerations will allow. Your entry into online service could also provide the impetus for some of our more recalcitrant locksmiths to prepare to enter the twenty-first century.

One more thing. The National Locksmith is now in a perfect position to compile a directory of E addresses of the locksmith distributors and manufacturers that have them, which could be an invaluable aid to locksmiths everywhere. How about it?

Good luck and see you online.

HitsaDeal  
Via E-Mail

Editor's Note:

We're working on a directory. If you're online, E-Mail us your address!

### Safe Deposit Request

Dear Marc:

Why is it that I never see an article on Safe Deposit Locks or Safe Deposit Box Opening?

As you surely know it is next to impossible to get training materials for this line of work, except for the newer locks. Obviously Lockmasters' course is good, though I have not taken it. I do have tapes 1 and 3 from Tech Train, and they are worth their weight in gold. Most of my knowledge of Safe Deposit locks and opening procedures came from viewing these tapes.



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## Our Condolences

Dugmore & Duncan acknowledges with great sadness, the recent death of highly respected sales technician, Lester "Buddy" Deagle. On February 12th, he succumbed to a short but valiant bout with cancer. In the words of company president Chuck Cullum, "He was a great guy and an inspiration to us all. I feel privileged to have known him as both a friend and the best employee any company could hope to have."

Buddy was just 37 years old and has left behind a loving family, including his wife, Diane, and young sons, Tommy, 9 and Michael, 7. Diane is expecting their third child who will be born this summer. Because so many of our customers developed a rapport with Buddy during his nine years with the company, messages of condolence to Diane and children or donations to The Buddy Deagle Memorial Fund, established for his family, may be sent c/o Dugmore & Duncan, at 30 Pond Park Rd. in Hingham MA 02043.

In Chuck's words, "We'll miss seeing your face and hearing your voice, Buddy, but you'll always be around here in our hearts and our memories."

The problem remaining is that there are so many obsolete locks still in service, and many will remain in service for some years. Where is the information on these? For example, the locks I service include Yale 3300's and what I assume to be Yale 3301's (Lockmasters I.D. Manual shows this lock with a bronze case and finish. The cover agrees with their drawing for the 3301.) Also HHM RYS002 locks. I got my hands on a Diebold catalog and thus was able to positively identify these (there is absolutely nothing stamped on the cases or covers of these locks). No one gives depth and spacing specifications on any of these locks. I would like to see such specs on both the renter and the guard keys to aid in setting up matchwork on an individual basis when necessary.

I mailed off letters yesterday to S&G and Ilco Unican seeking an explanation of the term "Yale SY3 Match" which they apply to their 4231 and P40Y locks respectively. Sure I have a general idea of what is involved, but want to know more specifically. I guess I am supposed to know the answer, but where might I get it? It just doesn't seem to be out there!!! Hopefully they will share this information with me.

Is this a challenge? How about giving us new guys a break.

I didn't present this to your competition, as you seem to lean more toward training articles for beginners. I'm counting on you.

Wayne E. Swanson  
Nebraska

Editor's Note:

Thanks for making us aware of your

need for Safe Deposit Lock service information. The reason some locksmiths don't get what they want out of a magazine is because they don't ask. We'll see what we can do about a series on Safe Deposit Locks in the near future!

## Reader Help To ID This Machine

Dear Marc:

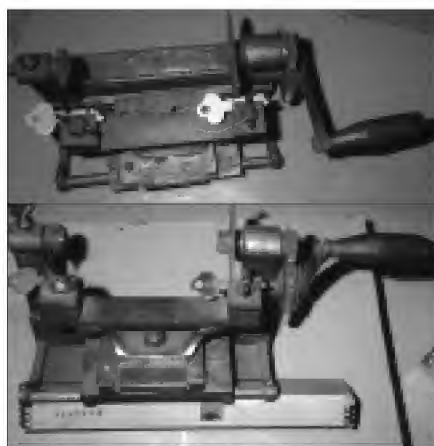
I have been a subscriber to your magazine for the past 10 years. Just this year I sent in for a renewal for my right hand man Eric Pederson.

Anyway when I bought this shop 30 years ago I inherited this vintage key machine. Can you or any of your qualified staff tell me the age of this? Unfortunately there is no name at all on the machine, it seems too good to be hand made.

Perhaps some of your readers can help!

Thanks for any help you can offer.

Bill Hamoson  
Vancouver, B.C.



## Reader Wants Standard Vehicle Service

Dear Marc:

A month or two back in the Technitips column a guy wrote about difficulties with the newer GM pickup doors.

He is not alone. As best as I can tell its a two man job to get one apart and back together. I had a glass and body shop tell me the lock can be removed without removing the inner panel or the window arms. I will just say I saw a magician make a jet disappear... and I don't believe that either.

Instead of all the \$50,000 car how-to articles that most of us never see how about one on the lowly Chevy pick up door?

Ronal G. Ryder  
Nevada

Editor's Note:

Thanks for your note, Ronal, it shows you're as concerned with what you get from our magazine as we are. I do, however, disagree with your summation that we only cover the high-end, expensive vehicles. While we cover vehicles from all ends of the economic spectrum, there is a healthy portfolio of standard vehicle service articles from which to choose. What I can agree with you on, is that there is simply not enough room in a magazine to include all the vehicle service procedures you may need to know.

On this point I recommend The National Locksmith Auto Association. This organization makes an excellent supplement to everything the magazine offers. One of the major advantages is that the NLAA newsletters cover the entire spectrum of auto classifications (from high security to the simple domestic) and include service procedures head-to-toe.

## Can You Help A Fellow Locksmith?

In late October, Locksmith Christopher Kaemmerer was involved in an accident that left him paralyzed and unable to continue working. A fund has been set up to provide assistance to Chris and his wife, Cori. If you would like to help the Kaemmerers with a donation, please send check payable to:

The Chris Kaemmerer Fund, P.O.  
Box 6167, St. Louis, MO 63006.

Thanks for your support. **TNL**



# The 1993 To 1995 Mazda RX7 Ignition

While the ignition looks similar to other Mazda ignitions, this version introduces a new sidebar.



by  
**Michael  
Hyde**

**M**azda released its new completely re-designed RX7 in 1993. Besides many innovative changes in design, there was a big

change from Mazda deep inside the ignition cylinder. A sidebar, double-sided wafer cylinder. The new RX7 is pictured in photograph one.

The RX7 ignition looks generally like all other late model Mazda ignitions. (See photograph 2.)

A Mazda computer analysis reveals that 86 percent of all new RX7's sold were equipped with a standard transmission. The ignition locks are different if it is an automatic transmission or a standard transmission because of the automatic transmission parking gear interlock required by federal law.

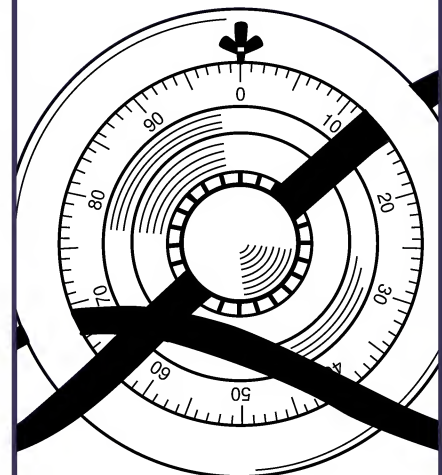
The ignition cylinder is held in place to the housing by four serrated



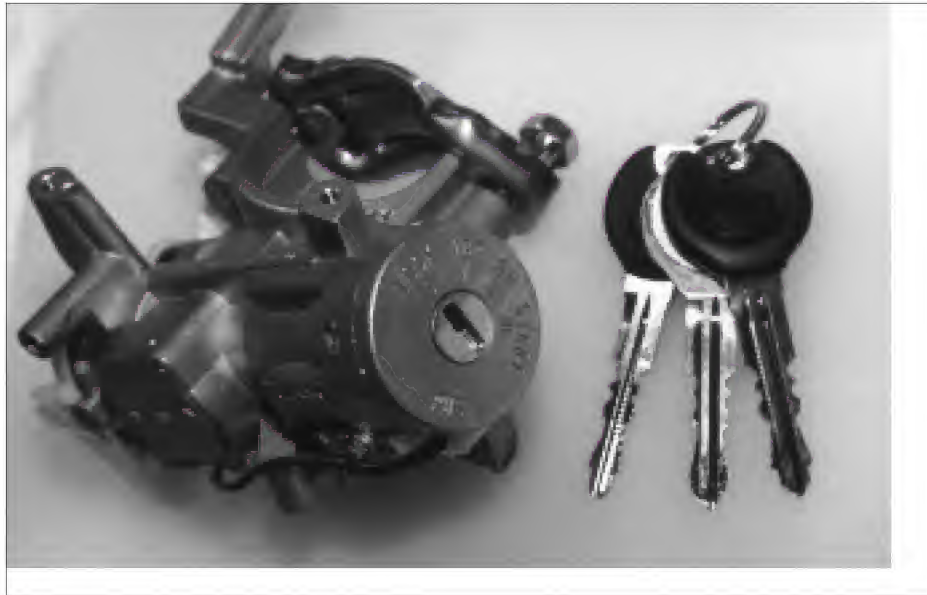
1. The RX7 front and back.



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## 2. The new sidebar ignition.

solid roll pins. Drill a 7/64" hole directly next to each pin. The depth of the drill hole should not exceed 1/4". (See photograph 3.)

After the four pins are removed, the cylinder will slide right out. There

is only one spring that can fall out while removing the cylinder, but luckily it is located on the back of the cylinder plug and will not go flying, never to be seen again. (See photograph 4.)

To remove the plug from the cylinder you will need to rotate the plug. Make a duplicate of the working key and cut the bow off. (See photograph 5.)

Insert the key and rotate the plug and then slide it out the rear of the cylinder. After you remove the plug the hardened face plate and key buzzer actuators will fall out. The way they are shaped allows for them to only go back in position one way. (See photograph 6.)

A close-up view of the cylinder plug shows eight tumblers, four on each side, and the side-bar. (See photograph 7.)

Once the cylinder plug is out of the housing, the "push and turn" device may fall out. (See photograph 8.)

The ignition cylinder assembly is made up of several small pieces, but is easily recognizable. (See photograph 9.)



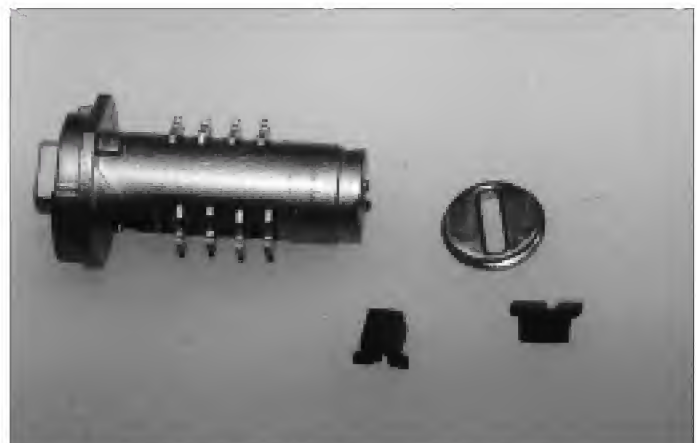
## 3. Drill and pry to remove the roll pins that hold the cylinder in the housing.



## 4. The cylinder removed. Notice the small spring protruding from the back of the lock. Do not lose it!

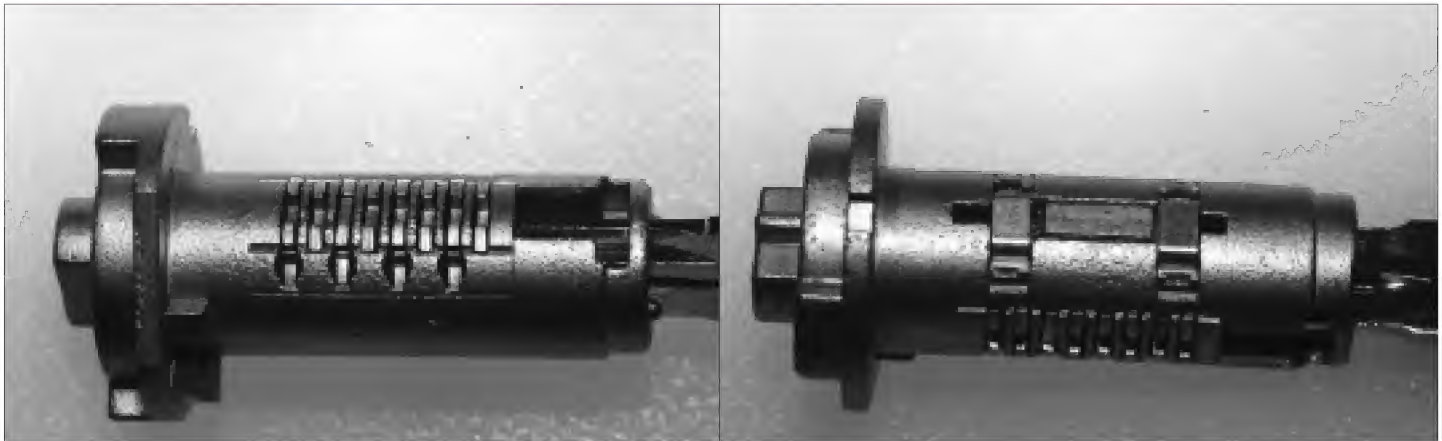


## 5. To remove the plug it is necessary to make a second working key with the bow removed.



## 6. The plug and its components removed from the shell.





7. A close-up of the plug showing the wafers and sidebar.

The new RX7 uses a new type of ignition tumbler that has a notch on the side for the side-bar and has a letter designation along with the numeral depth. (See photograph 10.)

I have rekeyed this cylinder using the correct depth but using a different letter designation and found it to work



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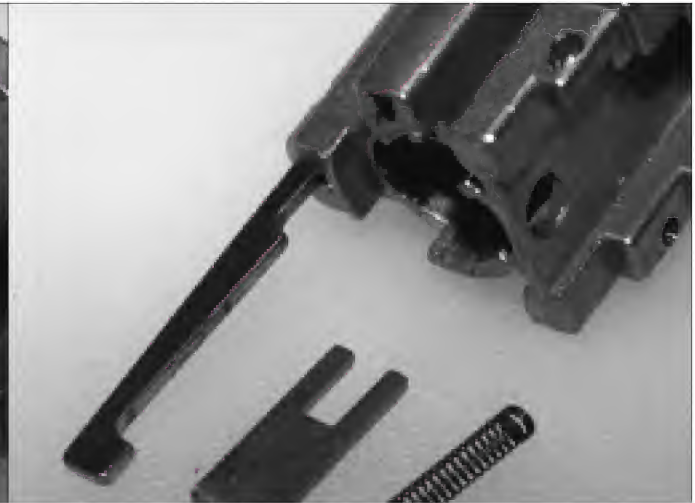
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8. The components that create the "push and turn" operation of the plug are now removed.



9. The completely disassembled ignition cylinder.



10. The new tumblers and new markings.



11. ASP Mazda pinning kit A-20-102.

Mazda RX7 Specifications										
Tumbler Positions										
1	2	3	4	5	6	7	8	9	10 (tip)	
x	x	x	x	x	x	x	x	x		Ignition
		x	x	x	x	x	x	x	x	Door, Trunk
Code Series: 10100-12099, Mazda 10 cut										
Key Blank: Ilco X222/MZ27										
Silca MAZ20R										
HPC Card: CF68										
MACS: 3										
First Cut: .098										
Cut To Cut: .083										
Depths: 1-.315", 2-.299", 3-.284", 4-.268", 5-.252"										

the same. There is a slight physical difference to the different letter designations but not a working difference between using a "3A" tumbler compared to using a "3C" tumbler. The

tumblers inside dimensions and height dimensions are exactly the same for each letter designation in each depth group. Why Mazda has used the letter designations in this lock is not clear, at this time.

Auto-Security Products makes the keying kit for this type of ignition and their part number is A-20-102. (See photograph 11.) **TNL**



# NEWSMAKERS

## New Products and Industry News

### Aluminum Padlocks By Federal Lock

Aluminum padlocks are now available from Federal Lock Company. The series 90A aluminum padlock is ideal for meeting safety lock-out requirements. The anodized aluminum lock body is available in seven colors and provide maximum protection



against corrosion. The series 90A has changeable and rekeyable 6-pin cylinders, keyed-differently or keyed-alike. The aluminum padlock also offers three hardened steel shackle lengths of 1", 2" and 3", all in standard 1/4" diameter to meet your lock-out needs.

**For FREE Information  
Circle 433 on Rapid Reply**

### Lockmasters® SCIFLock™ Now GSA QPL Listed

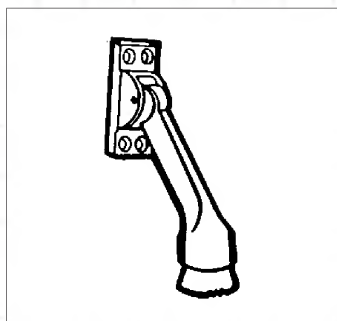
After many months of hard work and commitment Lockmasters®, Inc., is pleased to announce that their SCIFLock™ (LM5100) has passed all stringent tests set out by federal specification FFL2740 pedestrian door lock section. The result is that the SCIFLock™ is now listed on the GSA Qualified Products List (QPL). The SCIFLock™, as approved, is used in conjunction with the

Mas Hamilton X-07 combination lock. Only items that are QPL approved and meet specification FFL2740 can be used to secure DOD classified areas. The SCIFLock's™ aesthetically pleasing design will enhance any facility.

**For FREE Information  
Circle 434 on Rapid Reply**

### New Don-J o Kick Down Door Holders

Don-J o Mfg. has recently introduced a new line of solid brass kick down door holders. These new products are made from the highest quality brass available and feature a heavy duty spring for long wear and durability. Also, the rubber tip is threaded which allows for adjustment and replacement. These new items are available in four architectural finishes - solid brass (3), dull



chrome plated (26D), oil rubbed bronze (10B), and bright chrome plated (26). All four finishes are in stock and packaged in either poly bags or blister display cards.

**For FREE Information  
Circle 435 on Rapid Reply**

### Locksmith Charley's Keyblank Cross Reference

Locksmith Charley is pleased to announce the

availability of "Locksmith Charley's Keyblank Cross-Reference System." The system consist of three parts.

First, a set of over 5,000 keyhook tags encompassing Domestic and Foreign cylinder, automotive, flat steel, bit-barrel-post, and safe/safe deposit blanks.

The second part of the system is a computer program allowing the user to enter any manufacturer's blank number and almost instantly display all known equivalents to that blank as well as 4, 5, 6, and 7 pin variations for those blanks. Rubber (plastic) head equivalents for automotive keys are displayed as well.

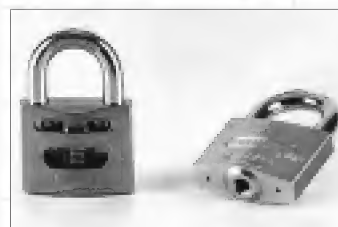
The third part of the system is a 100 page reference book listing in hook number order all of the blanks in the system as well as installation instructions.

**For FREE Information  
Circle 436 on Rapid Reply**

### Abus Lock U.S.A. Introduces 88 Series Padlock

Abus Lock U.S.A. announces the availability of the Abus Prestige Plus 88 series. The 88 vending series represents Abus' top line of brass padlocks, featuring the high security Abus-Plus 7-Disc cylinder. The plus cylinder with seven locking discs supplies the padlock with 250,000 key options rendering the lock virtually pick proof.

These brass padlocks feature a case hardened, chromated shackle and a solid brass lock body with a satin-chrome finish. The



Abus Prestige Plus 88 series shackle is secured by double ball bearings which are locked with the Plus Disc cylinder, providing high resistance against brutal attack. The Plus Disc locking mechanism also includes a hardened cylinder cover protecting the lock from power drill attack.

The 88 vending series offers maximum corrosion resistance for outdoor use. These vending locks are available in keyed different, keyed alike and master keyed versions.

**For FREE Information  
Circle 437 on Rapid Reply**

### G-U's Multiple Locking Door Hardware

There's Beauty in Security with G-U's line of multiple locking door hardware and decorative trim. Choose from a variety of systems to match your Entry, French, and Secondary door requirements to ensure increased





security and weather tightness. We've even developed a Retrofit system for existing or new doors with pre-drilled 2-1/8" holes and 2-3/8" backsets! Our systems offer you an opportunity to increase sales and upgrade your profitability.

A free handbook is available upon request which contains installation instructions and detailed information on each of the systems offered.

**For FREE Information  
Circle 438 on Rapid Reply**

### Safety Eye By Linda Resources

Unlike other door peep holes, the Safety Eye has an amazing, wide angle lens that has the optical quality of a high priced surveillance camera lens. Scans a large area with an amazing clear picture. (It almost looks like a TV picture).



Full 180° viewing angle. And because of it's clarity and design, a person of any height can stand 4' away from the door and see who is in a hallway, court yard, foyer etc. without revealing their presence to the person at the door. Great for homes with

children. Viewing lens is 2" in diameter.

**For FREE Information  
Circle 439 on Rapid Reply**

### HPG-49 Lock Grease By Sentry Security Fasteners

HPG-49 Detention Lock Grease. HPG-49 offers superior performance, outstanding protection, and exceptional lubrication in the maintenance, repair, and rebuilding of detention locks. HPG-49 is uniquely dispensed from a convenient, hand-held grease gun that accurately places the grease exactly where it is needed providing clean and economical use. A high security lock in the inmate or visitors portion of a prison may cycle in excess of 5,000 times each day, while individual cell doors and locks are subjected to constant attack. When these locks fail, the facility has a critical situation. HPG-49 is your measure of added protection and reliability. HPG-49 is designed to meet this need of the severe and punishing



environment of detention hardware. HPG-49 is distributed by Sentry Security Fasteners, Inc.

**For FREE Information  
Circle 440 on Rapid Reply**

### New HTL100 Trigger Lock Latch By Hartwell Commercial

Hartwell Commercial has announced the introduction of a new latch as an addition to the highly-successful and widely-applied HTL Series, adjustable Trigger Lock® latches.



The new HTL100 is a larger version of the HTL90 and HTL80 latches. This HTL series offers four distinct bolts with adjustability to cover a bolt offset range from .12" to 2.25". The all-metal casting is suitable for metal, wood, and plastic applications.

The splash-tight designed for trigger latch also meets MIL-STD-810E for salt spray testing. It has been designed for a utility truck body application; however, it is

highly suitable for other enclosures, including truck boxes, tool boxes, marine cabinets, lockers, and various access doors. The latch is easily installed with a mounting bracket and two screws.

The HTL100 Series Trigger Lock® latches are chrome-plated, with and without keyed locks available for immediate delivery.

**For FREE Information  
Circle 441 on Rapid Reply**

### New Catalog Offers Jensen Brand Tool Kit Cases

A new catalog from Jensen Tools features a full line of cases and shipping containers, including three styles of tool case made of vacuum-formed high-density polyethylene.

The Deluxe, Super Tough, and Rugged Duty style Polyethylene Tool Cases come in various depths and dimensions, and are popular options among buyers of the well-known Jensen (JTK) brand of top-quality tool kits. Like most of Jensen's other tool kit cases, they can be purchased alone, but are available only from Jensen. All three designs include Jensen-engineered tool pallets which can be adapted to the buyers own choice of



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tools. Pallet configuration is subject to case size, and is fully described and illustrated in the new catalog.

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### Snake Pick By Mark Bates Associates

mark bates ASSOCIATES announces the development of a new bypass tool for locksmiths. this new item, developed by Chris Marshall,



is called the Snake Pick™ and is used to open popular keyways of most mortise cylinders and allows the

technician to trip the lock mechanism with no damage.

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### Lockout Device By Stat Lock

Stat Lock has obtained a U.S. patent for its independent lock out device. The unit fits most doors up to 1-3/4" thick and accepts padlock shackles up to 3/8" diameter. The quick, non-technical installation requires only one 5/16" hole in the frame.

The lock has multiple uses, such as for evictions, temporary lockouts, or as a quick solution for broken locks or damaged doors. It can be used at hospitals, nursing homes or other institutions whose rooms do not have a lock when they are occupied by patients or other occupants, but need to be locked when they are unoccupied to protect contents from misuse, damage or theft.



The lock can be manually attached and removed from the door without using tools and is independent of the doorknob or handle assembly and the associated keeper.

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### ITI 2-Button Key Fob Is Three-In-One Product

The key fob is a wireless touchpad and a panic button, but it's also a great marketing tool. In its small size and simplicity the key fob gives users remote control over security products that make a big difference in their lives.

With the fob, users can activate a security system from 500' away.

The fob gives people who are otherwise fearful of electronic gadgets easy control over technology, and that make the fob a great marketing tool.



With the ITI-2 Button Key Fob your customers can arm and disarm their alarm system with the push of a single button. If they push both buttons, the key fob sends a panic alarm. Two-button key fobs are for use with ITI Learn Mode CareTaker Plus and Commander 2000 control panels. They're very small and very powerful.

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ITI

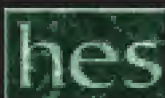


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## GENERAL SECURITY

Test Article #82

# The Schlage Primus

by Giles Kalvelage

It could be said that Schlage Primus is keeping its fingers on high security cylinders. In fact, that is the basic principle behind the operation of their high security cylinder.

This high security cylinder utilizes a second line of five pins, known as finger pins, to operate a sidebar. These pins are located to the side of the key broaching at the bottom of the plug. These finger pins must be raised to a specific height, and align, to allow the sidebar to retract into the plug when the key is turned. Standard pin tumblers operate a conventional shear line on top of the plug.

The finger pins are positioned by a milling on the side of the key. (See photograph 1.) Sidebar millings are cut on key blanks at the factory, requiring the locksmith to cut only the conventional pin tumbler cuts on blade of the key. No "special" key machine is required to originate or duplicate the pin tumbler cuts, but the use of a high quality code machine is best for originating keys, a high quality duplicator can be used for duplicating keys.

Schlage Primus provides various levels of key control, and is distributed through various channels, depending upon its level. Despite these restricted keys, the Schlage Primus uses keyways compatible to their standard line of keyways. Primus keys of compatible keyways will fit into corresponding conventional Schlage

plugs while conventional Schlage keyways will not fit into Primus plugs. This allows for flexibility in mixing high security cylinders with standard cylinders which may be useful at facilities where a master key system exists, but some sensitive areas of the facility require a higher level of security.

While it is illegal and violates patent restrictions, it is possible to take a conventional Schlage keyblank of the appropriate key section and duplicate the side milling cuts onto the blank using a high security key machine. Those who follow this practice could, should, and may be prosecuted if caught!

Schlage Primus offers two types of cylinders, the 20-700 series incorporating the standard Primus key and cylinder and the 20-500 series that protects the sidebar and pins with seven drill resistant pins. (See photograph 2.) With the drill resistant pins, along with the dual locking system, the 20-500 cylinder meets the listing standards for UL 437.

The "Controlled Access" line of Primus, the 20-700 Series, which does not contain drill resistant inserts, does not carry a UL 437 listing, but carries a smaller price tag while retaining resistance to picking, impressioning and unauthorized key duplication.

Pinning the conventional portion of the cylinders is standard, using the same pins as used in their conventional cylinders.

### Space and Depth Specifications

<b>HPC Code Card: 45</b>	
<b>Shoulder to First Cut: 0.231"</b>	
<b>Cut to Cut: 0.156"</b>	
<b>MACS: 7</b>	
<b>DEPTHS:</b>	
<b>0- 0.335"</b>	<b>5- 0.260"</b>
<b>1- 0.320"</b>	<b>6- 0.245"</b>
<b>2- 0.305"</b>	<b>7- 0.230"</b>
<b>3- 0.290"</b>	<b>8- 0.215"</b>
<b>4- 0.275"</b>	<b>9- 0.200"</b>

### Cylinder Assembly

Primus requires five finger pins. Primus uses identical sidebars, meaning that the sidebar is activated by the proper line up of the finger pins. There are six different finger pins available for Primus use. It is important to know the sidebar code for Primus to properly combine the finger pins. (See photograph 3.)

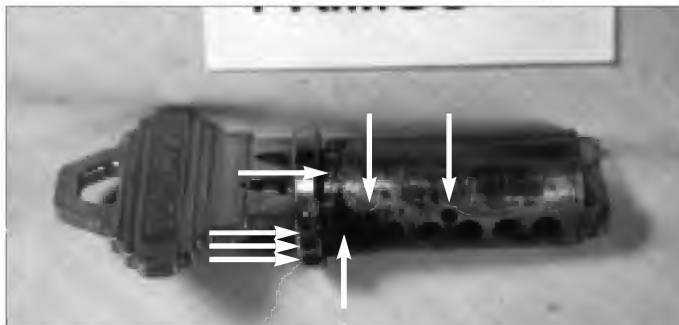
1. The first step is to load the finger pin springs. Turn the plug upside down and load the finger or side pin springs.

2. Insert the finger or side pins over the springs. Remember, Primus uses specific finger pins for each position. The pins are cupped on the end which contacts the springs.

3. Insert the key. (If the cylinder is to be part of a master key system, it may be advisable to cut a key with all conventional cuts to their deepest cuts in all positions. This key can then be

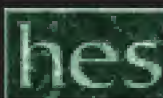


1. The sidebar milling of the Primus key controls the finger pins that control the sidebar.



2. Seven drill resistant pins are part of this Primus cylinder. A few can be seen from this photograph.





**3. This disassembled lock shows the finger pins, springs, and sidebar.**

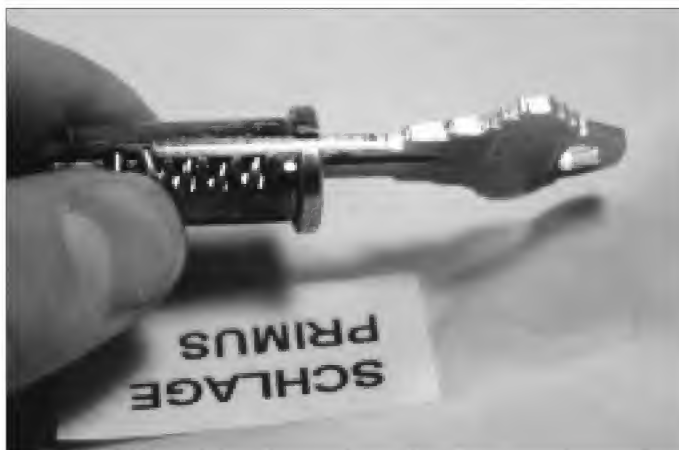
kept as a "keying" tool for future projects.

Our immediate goal of inserting a key into the plug is to retain the finger or sidebar pins inside the plug during the remainder of the rekeying process. Eventually, conventional pins will be loaded on top of the key, and creating a bottom/master pin stack higher than the shearline, a possibility when keying master keyed cylinders.

Obviously, if a bottom/master pin stack is higher than the shearline is created, the plug will not enter the shell during final assembly. If the key is cut to the deepest possible cut, the bottom/master pin stack will not rise above the shearline, allowing the plug to enter the shell. The bottom/master pin stack will not reach the shearline in most instances. (It is important to insert the plug offset from the shearline to avoid top or driver pins from falling into and jamming the plug.)

4. On the side of the plug, insert sidebar springs at each end of the sidebar groove. Insert the sidebar. Remember, Primus is non-handed.

5. Holding the sidebar in with your fingers, turn the plug upside right.



**4. Insert the key into the plug.**

Load the conventional pins according to normal standards. It may be easier to insert the plug into a plug holder while loading the conventional pins - especially if the top pins have not yet been loaded into the shell.

6. After the top pins have been loaded into the shell, the conventional bottom and master pins loaded into the plug, carefully insert the plug into the shell, taking care not to loose the sidebar. Secure the tailpiece or cam.

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## AUTOMOTIVE SECURITY

Test Article #83

# The 1995 Saturn

by Tom Mazzone

**S**aturn's ignition lock for its 1995 models seems to have undergone some very subtle changes to the unsuspecting locksmith. They are, however, enough to turn the air blue with frustration if serviced without the proper technical information. The locks and keys for the Saturn are produced by All-Lock, and locks and service parts are available from All-Lock distributors.

The blade of the 1995 Saturn key is now .070" longer than its predecessor and is still a tip-stop type key (All-Lock #94ST). At first glance, the change in the key blank dimension is not readily visible. However, if the blanks are laid side by side, the length difference is easily seen. The factory index notch found on the edge of the blade is one full cut space toward the bow of the key. This change was made because the bows of the previous, shorter blanks had a tendency to rub on the ignition bezel while turning. (See photograph 1.)



**1. The newer Saturn key has an identical keyway and cutting specifications but is .070" longer.**

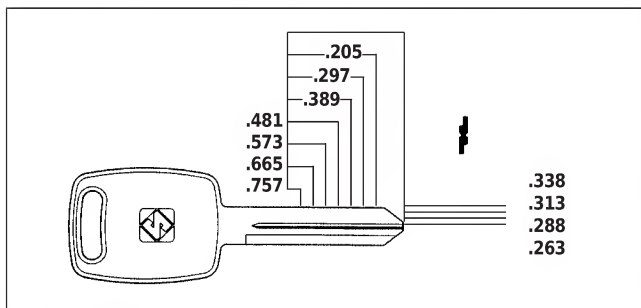
A more important change, however, is tumbler placement on the ignition. In years past, wafers 1 through 6 were present in the ignition cylinder. For the 1995 ignitions all seven wafers are in the ignition plug (All-Lock ignition #1359). (See photograph 2.) This is an especially important point to remember if



**2. The 1995 Saturn ignition (left) has all seven tumblers as opposed to the six held by its predecessor (right).**



**3. Appearances are deceiving. While these two locks look similar, the 1995 version (left) holds a few subtle and important differences.**



<b>GAUGED</b>		Tip
<b>CENTER OF FIRST CUT</b>		.757"
<b>CUT TO CUT</b>		.092"
<b>DEPTHS</b>		1-.338", 2-.313", 3-.288", 4-.263"
<b>KEYBLANKS</b>	<b>Master</b>	All-Lock 94ST, B&S 594579, Silca GM 25R, Ilco P1100, Curtis B 76
	<b>Valet</b>	None
	<b>Code Card</b>	CF207
	<b>Cutter Stop</b>	CW1011
<b>HPC 1200CM</b>	<b>Stop</b>	CM -1054M A Red Tip Stop
	<b>Spacing Block</b>	#3, .092"
	<b>Start Cut</b>	.144"
	<b>Cutter Stop</b>	FC8445
<b>FRAMON</b>	<b>Stop</b>	Ford 5 Pin Clip
	<b>Cam</b>	CHRY-4
	<b>Carriage</b>	SAT-1A
<b>CURTIS</b>	<b>Punch</b>	47°
<b>TUMBLER LOCATIONS</b>		
	<b>Space</b>	<b>1 2 3 4 5 6 7</b>
	<b>Ignition</b>	X X X X X X X
	<b>Door</b>	X X X X X
	<b>Trunk</b>	X X X X X





**4. The 1995 ignition (left) has a much larger cylinder retaining pin than the older version.**



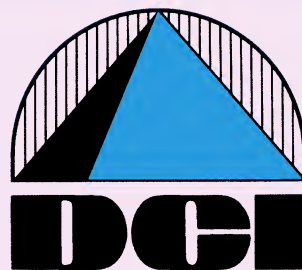
**5. Also, this lug is present on the new ignition (left) and not the older.**

generating a first key by impression. If the locksmith continues impressing using old information, he may overlook the seventh space, foiling the impressing attempt. It should be noted that no changes were made to the door and deck lid locks. Door locks have tumblers in positions 2 through 6. Deck lid locks have tumblers in positions 3 through 7.

While the outward appearance of the post-1995 and 1995 ignition

cylinders seem identical, change is evident in the size of the cylinder retainer pin on the 1995 ignition lock. (See photographs 3 and 4.) The newer version is almost twice the size of the earlier model. There is also a cast lug on the back of lock cylinder plug, approximately 11/32" from the end. (See photograph 5.) This makes plug removal, for rekeying and servicing, similar but not identical to the older style ignition.

To remove the plug, gently remove the plastic bezel from the lock cylinder. Use a key or shim and pick the lock to turn the plug until the plug retaining pin comes to rest against the plug stop. Use a small screw driver to depress the pin while rotating the plug to align the pin with the clearing in the cylinder. Be careful. This pin is spring loaded and is easily lost. Once the pin is in the clearing, remove it. (See photograph 6.)



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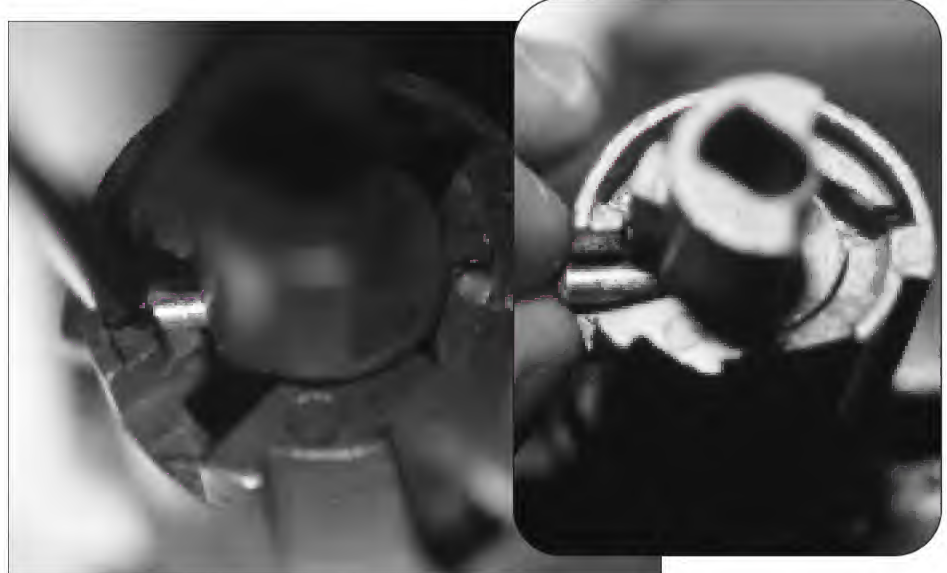
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Continue to turn the plug until the lug on the back of the plug aligns with the cylinder broaching found at the clearing used to release the plug retainer. Once aligned, slip the plug out the front of the cylinder. (See photograph 7.)

It should also be noted that despite very similar appearances, the newer and older style locks are not interchangeable.

Ignition lock removal is fairly straight forward and identical to previous year's models. Having both driver and passenger side airbags, always disconnect the battery cables before servicing, negative side first. Remove the five 1/4" screws holding the two-piece clam shell shroud together. Two of these screws are deeply recessed into the lower shroud. A thin wall 1/4" socket must be used to remove these bolts easily. If your socket is too thick, put a 1/4" drive ratchet extension on the socket and carefully thin the outside diameter of the socket on a grinder. The extension will help you hold the socket steadily as well as keep the heat away from your hands.

Remove the shrouds and set them



**6. Depress the plug retainer and turn the plug until it enters the clearing. Carefully remove the retainer.**

aside in a safe place. Locate the lock cylinder retaining pin that holds the lock in the steering column. The retaining pin can be easily located by projecting an imaginary line through the lock immediately left of the word START on the face cap.

Pick the lock to ACC, depress the pin and remove the lock. The face cap does not need to be removed at any time during this procedure.

If face cap removal should become necessary (i.e. rekeying) care must be taken as the face cap's plastic retaining tabs can be damaged if brute force and tactics are used.

Aside from impressioning, tryout keys are also a realistic option in fitting a first key. Keep in mind that the more wafers in a lock cylinder, the greater the likelihood for failure. Previously, with six wafers in the ignition, a tryout key needed only to

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**7. Continue turning the plug until the lug aligns with the broaching. Remove the plug out the front of the cylinder.**

work within the tolerances of the lock and six wafers. With the seventh wafer present, however, the security is increased; much like trying to pick a five pin cylinder versus a six pin cylinder.

According to David Parrott of Aero Lock, manufacturer of automotive tryout and depth keys, on pre-1995 Saturns only 32 keys (set TO48) were needed to produce a tryout set for the door and ignition lock. With the added tumbler in the 1995 ignition the tryout set now jumps to 128 keys (set TO79). This shouldn't scare locksmiths off, however. Parrott points out that despite the larger number of keys, it only takes a maximum of 36 tries for finding a door and ignition lock key.

As an alternative to the larger set, because the door locks are the same for 1995, the smaller set of tryout keys can be used to determine the door biting. After this has been found, tumbler position 7 can be progressed from the trunk and then tumbler position 1 progressed from the ignition.

If tryout keys aren't your thing, reading the door lock either by sight or using H.E. Mitchell's EEZ Reader for Saturn (EEZ-B76) is a viable option. After reading the tumblers in the door lock, progression for positions 7 and 1 as listed above.

As a final key fitting alternative, the ignition lock can be picked and removed.

Aero Lock can be contacted at 800-627-9433.

H.E. Mitchell Co. can be contacted at 800-626-5625.



## ELECTRONIC SECURITY

Test Article #84

# Four Factors In CCTV Selection

by Charles Stephenson

**Y**our customer's goal may be the surveillance of property, but as designers and installers of CCTV systems your goal should always be to produce the best possible image of the surveillance area on the viewing monitor and recording tape.

This is accomplished by making four basic considerations of a CCTV surveillance system: light, lenses, cameras, and monitors.

### Light

Light is the first and possibly most important element to consider. You must determine the source of light, its intensity, and stability. These characteristics of light, in conjunction with the camera's location and orientation, dictate your choice of lens.

Outside light sources can consist of natural light (like the sun or moon), artificial light (like street lights head lights or security lighting) or a combination of these sources.

Because customers generally require surveillance during specific time periods, the lighting characteristics tend to be rather

predictable and stable. For example, if your customer wants to monitor the shipping docks or parking lot from 7 a.m. to 6 p.m., you may require a setup such as a manual iris lens mounted on a camera with an electronic iris. This combination allows the CCTV to produce good images whether in bright sunlight, or under dimmer conditions during dawn, dusk, or overcast days.

If the surveillance area requires the camera to face the rising or setting sun, you might need to purchase an auto iris lens and/or mount the camera in a higher position, pointing it down in order to avoid the direct sunlight. The same is true if the camera faces on-coming headlights or if headlights can be used by intruders to "blind" the camera during hours of darkness.

If your customer requires 24-hour monitoring, and you face lighting conditions which range from a dimly lit parking lot to brilliant sunlight reflecting off gravel or sand, an auto iris lens with an internal neutral density spot filter may be needed. The filter prevents "over-driving" the camera and delivers a usable image around the clock. A spot filter may be the answer to extreme outdoor lighting variations. (See illustration 1.)

Indoor lighting is usually incandescent, fluorescent or high-intensity discharge (HID). In most situations the lighting can be easily managed by using a manual iris lens. The electronic iris in the camera can adjust to most changing light situations, eliminating the need for the more expensive auto iris lenses.

Always keep in mind that a properly lit area is the first deterrent to crime. CCTV then enhances that deterrence and allows you to view activity remotely and/or record that same activity. Additional artificial lighting can enhance the function of a good system.

### Lenses

The lens is an extremely important

component to your CCTV system, as its primary function is to control light, and therefore the visibility and clarity of the image.

Lens charts list the fields of view for the more popular lens sizes, and are helpful in selecting the correct lens. (See charts 2 and 3.) Using the chart is easy. For example, the 1/3" format camera lens in a 6mm focal length will capture a field of view 32' wide by 24' high at a distance of 40' from the camera. This field can then be viewed on a monitor which may measure 9", 17" or be displayed on only 1/4 of a screen if you choose a quad splitter.

When choosing the right lens, consider how much detail you want the camera to transmit. For example, to read a license plate (numbers are 2-1/2" tall) at a distance of 40', consider a 50mm lens, giving a field of view of 3.8' wide by 2.9' high. If the situation demands both a normal and a close-up view, then a 6mm by 60mm motorized zoom lens may be a good choice, providing fields of view ranging from 3.2' wide by 2.4' high. (See illustration 4.)

A zoom lens not only provides a range of focal lengths which are manual or motorized but also may feature a manual or auto iris. Zoom lenses usually require a control box to allow adjustments of the iris, focus and zoom motor. (See illustration 5.)

### Cameras

Cameras may be the most complex component in your CCTV arsenal. Let's limit our discussion to the basic considerations for choosing the right camera: lux rating, lines of resolution, image sensors, and format.

The "lux rating" of a camera is a term used to describe the overall sensitivity of the camera to light. A camera with a lux rating of 2, for example, can produce a discernible image at a minimum illumination of 2 lux (approximately equal to the light provided by a full moon on a clear night). The lower the lux rating, the

### LENS BASICS AUTO IRIS, WITH SPOT FILTER

#### What does an auto iris do?

- Compensates for changing light conditions
- Multicoated filter reduces reflection
- Adjusts light transmission from F 1.3, down to F 3.60
- Adjustable to required video levels
- Powered from camera or separate power supply
- Requires auto iris connector

**Not for use on scanners or auto pan units**

**1. The type and amount of light present determines the type of lens needed to render the best possible image.**



**Lens/Field of View Reference Chart  
1/2"**

Lens Model	1/2" Format Camera	5 Feet W x H in Feet	10 Feet W x H in Feet	20 Feet W x H in Feet	40 Feet W x H in Feet	50 Feet W x H in Feet	100 Feet W x H in Feet
H3.5 1.6	3.5mm	9.1 x 6.9	18.3 x 13.7	36.6 x 27.4	73.1 x 54.9	91.4 x 68.6	182.9 x 137.1
S4.8 1.8	4.8mm	6.7 x 5	13.3 x 10	26.7 x 20	53.3 x 40	66.7 x 50	133.3 x 100
H6 1.2	6mm	5.3 x 4	10.7 x 8	21.3 x 16	42.7 x 32	53.3 x 40	106.7 x 80
S7.5 1.4	7.5mm	4.3 x 3.2	8.5 x 6.4	17.1 x 12.8	34.1 x 25.6	42.7 x 32	85.3 x 64
S8 1.3	8mm	4 x 3	8 x 6	16 x 12	32 x 24	40 x 30	80 x 60
H12 1.2	12mm	2.7 x 2	5.3 x 4	10.7 x 8	21.3 x 16	26.7 x 20	53.3 x 40
S16 1.4	16mm	2 x 1.5	4 x 3	8 x 6	16 x 12	20 x 15	40 x 30
G25 1.4	25mm	1.3 x 1	2.6 x 1.9	5.1 x 3.8	10.2 x 7.7	12.8 x 9.6	25.6 x 19.2
G50 2.8	50mm	.6 x .5	1.3 x 1	2.6 x 1.9	5.1 x 3.8	6.4 x 4.8	12.8 x 9.6
G75 1.8	75mm	.4 x .3	.9 x .6	1.7 x 1.3	3.4 x 2.6	4.3 x 3.2	8.5 x 6.4
H6X8-II	@8mm	4 x 3	8 x 6	16 x 12	32 x 24	40 x 30	80 x 60
H6X8-II	@48mm	.7 x .5	1.3 x 1	2.7 x 2	5.3 x 4	6.7 x 5	13.3 x 10
H10X8-II	@8mm	4 x 3	8 x 6	16 x 12	32 x 24	40 x 30	80 x 60
H10X8-II	@80mm	.4 x .3	.8 x .6	1.6 x 1.2	3.2 x 2.4	4 x 3	8 x 6

**1/3"**

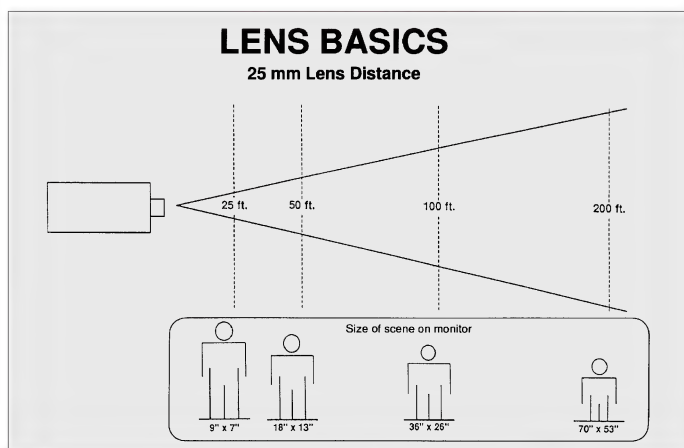
Lens Model	1/2" Format Camera	5 Feet W x H in Feet	10 Feet W x H in Feet	20 Feet W x H in Feet	40 Feet W x H in Feet	50 Feet W x H in Feet	100 Feet W x H in Feet
H3.5 1.6	3.5mm	6.9 x 5.1	13.7 x 10.3	27.4 x 20.6	54.9 x 41.1	68.6 x 51.4	137.1 x 102.9
4 1.2	4mm	6 x 4.5	12 x 9	24 x 18	48 x 36	60 x 45	120 x 90
H6 1.2	6mm	4 x 3	8 x 6	16 x 12	32 x 24	40 x 30	80 x 60
8 1.2	8mm	3 x 2.3	6 x 4.5	12 x 9	24 x 18	30 x 22.5	60 x 45
H12 1.2	12mm	2 x 1.5	4 x 3	8 x 6	16 x 12	20 x 15	40 x 30
S16 1.4	16mm	1.5 x 1.1	3 x 2.3	6 x 4.5	12 x 9	15 x 11.3	30 x 22.5
G25 1.4	25mm	1 x .7	1.9 x 1.4	3.8 x 2.9	7.7 x 5.8	9.6 x 7.2	19.2 x 14.4
G50 1.8	50mm	.5 x .4	1 x .7	1.9 x 1.4	3.8 x 2.9	4.8 x 3.6	9.6 x 7.2
G75 1.8	75mm	.3 x .2	.6 x .5	1.3 x 1	2.6 x 1.9	3 x 2.4	6.4 x 4.8
L6X6.5	@6.5mm	3.7 x 2.8	7.4 x 5.5	14.8 x 11.1	29.5 x 22.2	36.9 x 27.7	73.8 x 55.4
L6X6.5	@39mm	.6 x .5	1.2 x .9	2.5 x 1.8	4.9 x 3.7	6.2 x 4.6	12.3 x 9.2
L10X6	@6mm	4 x 3	8 x 6	16 x 12	32 x 24	40 x 30	80 x 60
L10X6	@60mm	4 x .3	.8 x .6	1.6 x 1.2	3.2 x 2.4	4 x 3	8 x 6

2. Common lens applications based on field of view. This chart doubles the distance between each column, notice the difference in the field of view for a given lens.

**Lens/Field of View Reference Chart**

Lens Model	1/2" Format Camera	3 Feet W x H in Feet	5 Feet W x H in Feet	7.5 Feet W x H in Feet	10 Feet W x H in Feet	12 Feet W x H in Feet	15 Feet W x H in Feet	18 Feet W x H in Feet
H3.5 1.6	3.5mm	5.5 x 4.1	9.1 x 6.9	13.7 x 10.4	18.3 x 13.7	22 x 16.4	27.3 x 20.7	32.9 x 24.7
S4.8 1.8	4.8mm	4 x 3	6.7 x 5	10 x 7.5	13.3 x 10	16 x 12	20.1 x 15	23.9 x 18
H6 1.2	6mm	3.2 x 2.4	5.3 x 4	8 x 6	10.7 x 8	12.8 x 9.6	15.9 x 12	19.3 x 14.4
S7.5 1.4	7.5mm	2.6 x 1.9	4.3 x 3.2	6.5 x 4.8	8.5 x 6.4	10.2 x 7.7	12.9 x 9.6	15.3 x 11.5
S8 1.3	8mm	2.4 x 1.8	4 x 3	6 x 4.5	8 x 6	9.6 x 7.2	12 x 9	14.4 x 10.8
H12 1.2	12mm	1.6 x 1.2	2.7 x 2	4 x 3	5.3 x 4	6.4 x 4.8	8.1 x 6	9.5 x 7.2
S16 1.4	16mm	1.2 x .9	2 x 1.5	3 x 2.3	4 x 3	4.8 x 3.6	6 x 4.5	7.2 x 5.4
Lens Model	1/2" Format Camera	3 Feet W x H in Feet	5 Feet W x H in Feet	7.5 Feet W x H in Feet	10 Feet W x H in Feet	12 Feet W x H in Feet	15 Feet W x H in Feet	18 Feet W x H in Feet
H3.5 1.6	3.5mm	4.1 x 3.1	6.9 x 5.1	10.4 x 7.7	13.7 x 10.3	16.4 x 12.4	20.7 x 15.3	24.7 x 18.5
4 1.2	4mm	3.6 x 2.7	6 x 4.5	9 x 6.8	12 x 9	14.4 x 10.8	18 x 13.5	21.6 x 16.1
H6 1.2	6mm	2.4 x 1.8	4 x 3	6 x 4.5	8 x 6	9.6 x 7.2	12 x 9	14.4 x 10.8
8 1.2	8mm	1.8 x 1.4	3 x 2.3	4.5 x 3.5	6 x 4.5	7.2 x 5.4	9 x 6.9	10.8 x 8.1
H12 1.2	12mm	1.2 x .9	2 x 1.5	3 x 2.3	4 x 3	4.8 x 3.6	6 x 4.5	7.2 x 5.4
S16 1.4	16mm	.9 x .7	1.5 x 1.1	2.3 x 1.7	3 x 2.3	3.6 x 2.8	4.5 x 3.3	5.4 x 4.1

3. This chart is similar to illustration two but uses smaller changes in the distance.



**4. Determining exactly what the customer needs to see determines the correct size lens.**

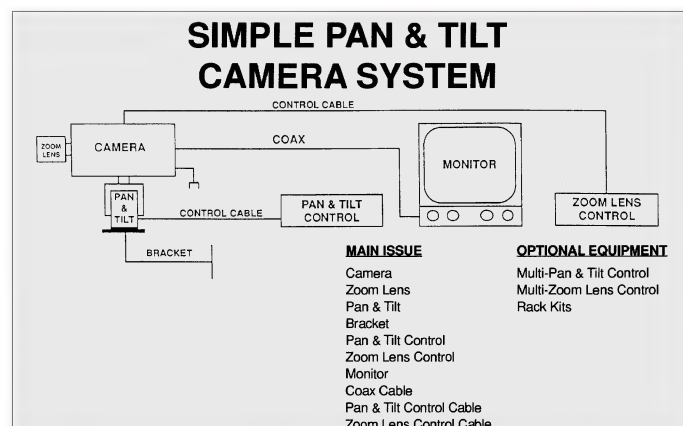
more sensitive the camera. A lux rating between .1 and .5 is typical for most cameras and will fill almost any demand you might encounter.

Resolution, or lines of resolution, simply refers to the level of clarity or detail the camera is capable of transmitting. The greater the number of lines (typically 380 to 400 or more) the higher the resolution of the camera, and therefore the more detailed the transmitted image.

The CCD (charge coupled device), or chip, is the leading image sensor in

today's market, having almost completely replaced the tube type image sensors. While tube cameras tend to feature higher resolution, they usually have a relatively shorter life span and tendency to suffer from image burn.

The format of the image sensor or camera refers to the size of the chip. The format plays a very important role in how much is seen with the camera. The larger the format, the larger the field of view. (See illustrations 2 and 3.) Currently CCD cameras offer 1/3",



**5. A zoom lens allows for a wider range of viewing options, but also necessitates the need for a control box.**

1/2", 2/3" and 1" formats, with the 1/3" and 1/2" formats the most widely used. The 1/3" format camera recently has been gaining in popularity.

One last note about camera installation Some manufacturers have cameras which receive their power through multi-stranded cables from the monitor. These cables carry power, video signals, audio signals, and alarm signals, and utilize special connectors which simplify the

**Continued on page 33**



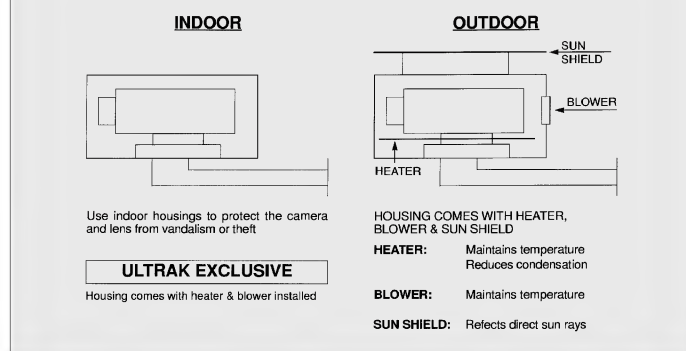
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Continued from page 31

## HOUSINGS



**6. Environmental concerns effect how the camera is mounted and protected.**

installation and allow changing camera positions and locations more economically.

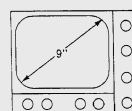
### Mounting Equipment

A CCTV won't accomplish much if rain, ice, dust or heat cloud the lens or saturate the camera's circuitry. Extreme heat requires an environmental camera housing with a blower and thermostat inside to provide ventilation. In direct sunlight a sunshield may be installed over the housing to reflect the sun's rays and moderate the temperature. (See

illustration 6.) Lower temperatures (40° F and below) require a heater and thermostat in the camera housing to maintain a warmer temperature and prevent ice or condensation.

Many customers inquire about pan and tilt mounts with a zoom lens on the camera. They assume that this setup allows one camera to do the work of several. This is simply not the case. While pan and tilt units do have their place, they cannot watch everything. While the camera is panning and/or tilting, the vast majority of the area to be viewed, is

## MONITORS – SPECIAL PURPOSE



- Built-in 4-position switcher
- Built-in 4-position audio
- 700-line resolution

### ADVANTAGES:

- Two functions in a single unit
- Audio pick-up for recording audio, as well as video events
- Homing switcher

### APPLICATION:

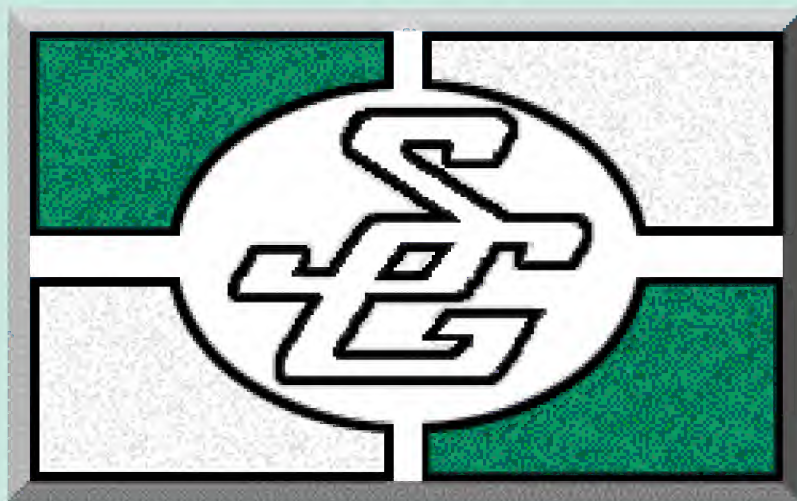
- Up to four camera system
- Small retail
- Small commercial
- Residential

**7. Today's monitors offer several different options. The size of a monitor is based on its diagonal measurement.**

not. In most situations, multiple cameras provide more view and higher security at a lower cost.

Pan and tilt units generally feature movement of up to 360° on the horizontal plane and ±45° on the vertical. Variable speed units may travel as slow as 1° per second or a super fast 100° degrees per second. The slower the speed the more time allowed to inspect each field of view. For reference, a person's average speed when walking is about 4' per second.

Continued on page 34



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**Continued from page 33**

Remember, it takes time to adequately observe the entire surveillance area when using a pan and tilt unit. This means that other areas remain unviewed and unsecured. An intruder may easily observe the movement of the camera and time its activity to avoid detection during a theft.

To insure proper coverage, the best alternative is strategic use of multiple cameras connected to more than one monitor or fed into quad splitters or a multiplex.

**Monitors**

The monitor interprets the camera's signal, and displays and image of the surveillance area. This signal (unlike regular TV which uses RF signal) is transmitted at baseband frequencies over coaxial cable. A monitor is quite different from a standard TV set, and one will not serve as a replacement for the other.

Today's technology and equipment design has resulted in various monitors that have several features built into the unit itself. (See illustration 7.) Some models offer

**WHAT IS THE OPTIMAL VIEWING DISTANCE OF THE VIDEO MONITOR BY THE OPERATOR?**

MONITOR		
SIZE	MINIMUM DISTANCE	MAXIMUM DISTANCE
5"	2.0'	3.0'
9"	3.0'	7.0'
12"	3.4'	10.0'
13"	3.5'	10.0'
15"	3.9'	12.0'
19"	4.1'	14.0'

**NOTE:** 1. Based on natural or corrected 20/20 vision.  
2. Based on a soft-lighted area or darker.

**8. The size of the monitor needed is dependent on how far the view is from the screen.**

two-way communication. Other models have internal switchers that regulate automatic viewing of up to four camera images without additional accessories. Some monitors feature a "quad display," allowing a view of all four camera images at once, or one camera at a time.

These all-in-one units allow looping video to additional monitor sites or slave monitors. When site alarms are used to trigger the start of recording events, the monitors transfer that alarm signal to the recorder while

isolating the images for a preset period of time.

The selection of monitor size primarily depends on how far the monitor is from the person viewing it. Table eight shows the recommended monitor size in relation to the distance from the viewer. A desktop unit may call for a 5" or 9" model, while a wall mounted unit (with a wired remote control) may need to be 12" or 14". A monitor used for recorder playback requires a 13" or 15" screen size, and a 17" is suitable for quad

displays.

The author is in field sales and CCTV development with Lockmasters, Inc. For more information contact Lockmasters at 606-885-6041 between 8 a.m. and 5 p.m., Monday through Friday.

The author wishes to acknowledge and thank the Ultrak Group for furnishing illustrations for this article; as well as Holly Colgan and Sean Horenstein of Lockmasters, Inc. for their invaluable assistance. **TL**



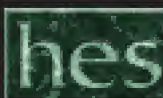
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# BEGINNER'S CORNER

## Rekeyable Master Padlocks

**W**e've discussed the Steel Body Master Padlock W27 and how to get the cylinder out of the padlock for rekeying. (The National Locksmith, March 1994.)



by  
**Eugene Gentry**

Now I will go into more detail on the pinning of the Master W27 and Master 21 rekeyable padlocks. We are using the Master Pinning Kit, part number 291. This kit has everything that you need to pin the Master padlocks, including a chart and instructions on the inside lid. (See photograph 1.)

The cylinder has been taken out of the padlock so we are ready to take out the plug. This cylinder was purchased zero bitted and the zero bitted key will be used to remove the plug.

Turn the key so that the slot on the bottom of the key way is lined up with the indentation mark at the rear of the cylinder. Line up the plug follower with plug and push the plug out of the cylinder. (See photograph 2.) Place the plug in a vice or plug holder so it is ready for pinning.



**2. Cylinder and plug.**



**1. Master Lock padlock pinning kit.**

The key blanks that can be used for this W27 are Star 5M A4, Ilco 1092VM, or Taylor U92A. The key blank for this pinning was a Star 5M A4. The cut for number one on the blank was a 2 depth at .245", number two was a 4 depth at .215", number three was a 3 depth at .230", number four was 5 depth at .200" and number five was a 2 depth at .245". The seven depths for this Master W27 are .015" apart.

After the key was cut, I checked it out on the decoder, supplied in the pinning kit, and found an interesting

fact. The decoder showed that each depth on my key was one depth lower. For instance my number 2 depth decoded as a number 1, the number 4 depth decoded as a 3, and etc. Due to this, I checked the depths with a dial micrometer and they were correct.

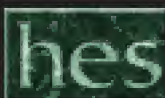
I started pinning the first and second hole by using the depths that were cut on the key and found that the pins extended higher than the shear line. I started again and by using the decoded depths the pins were exactly correct.

When the pinning is finished, place the plug back in the cylinder, again lining up the slot in the bottom of the key way with the marking indentation on the rear of the cylinder. You are now ready to reassemble the padlock.

The Master 21 is a rekeyable padlock, laminated, and much smaller than the W27. The cylinder is removed by using an Allen wrench to take out the screw in the bottom of the shackle hole. With this removed, the cover plate over cylinder comes off and the plug slips out of the padlock. Behind this plug is a metal extender that is used for this shorter plug. Without the extender, a 5 pin plug could be used in this padlock. The plug in this padlock is four pin. (See photograph 3.)



**3. A disassembled Master 21 laminated padlock.**



**4. A precut key and decoder.**

The key blank for this padlock is Master M1. I used a precut key for this pinning, and it decoded as 6553. (See photograph 4.) The decoder has two slots, the top one for Master padlocks 1 - 3 - 5 - 15 - 17 - 27 - 6000 - and 7000. The bottom one is for 81-600A and 700A. I didn't see 21 on the decoder, but I used the top slot for decoding.

Removal of this plug is like the W27. Line up the bottom slot of the keyway with the indentation mark on the rear of the cylinder. If the plug is not lined properly, the upper pins would fall. They are difficult to replace as there is no cap on the top of the pins.

Push out the plug with the follower while holding the cylinder upright so the pins do not fall out of the plug. Remove the old pins and replace them with your new pins.

Put the plug back in the cylinder by lining up the key slot with the indentation mark on the rear of the cylinder. There is no retaining clip on these plugs to replace.

Reassemble the padlock by placing the cylinder in its hole, install the face cover, and put back the screw.

I find the Master Rekeyable padlocks easy to work on with the advantage of using either a four pin or five pin cylinder. Another advantage of the Steel Body W27 is the shackle can be changed to a larger size. **TRI**



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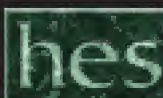


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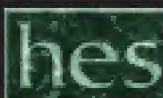
Cover  
Feature

# I'LL & PUFF I'LL HUFF & I'LL **KICK** YOUR DOOR! IN!

Customers say  
a deadbolt is a deadbolt.  
They don't know any better.  
Do you?

by Dale Libby





Seeing is believing. I have installed hundreds of deadbolts in the 30 plus years that I have been a full time locksmith, and now I have added a new feature to my installation procedures. I insist that the customer purchase a wrap around door guard plate and a high security strike before I will install a deadbolt. We, at The National Locksmith Testing Labs, recently did a series of comprehensive examinations on deadbolts and door knobs that not only proved informative, but also fun.

First, the stars of this article consist of the hardware used on the door that weathered our violent attacks. The surviving hardware consisted of the following:

1. The new Schlage B 660P series of deadbolts that have a beefier bolt assembly and stronger holding screws than that of the standard 400 and 100 series.



2. A MAG 747 High Security Box Strike. (Which states on the box that it will stop kick-ins. It does, and should be used with all deadbolts.)

3. A Don-Jo classic wrap around door reinforcer that fits on the door under the deadbolt and door knob to stop the door from splitting, it does, too. Part #CW-481-PB.

These three items can be seen in photograph one. And while they appear a little worse for wear, they did work. So, well, in fact, that despite the assault the deadbolt still operates.

Tom Seroogy, chief carpenter at the Testing Labs, built a framework to hold the two pre-hung doors used for these tests. The doors and framing were standard for residential applications. The rough frame was built to standard residential construction, except the header which plays little part in a security installation, using building grade 2"x4". The doors were standard residential steel clad doors with wood rails or edges.

On the first door we installed a "Faultless" brand deadbolt and door knob purchased from a local Builder's Square store. In the package the \$12 deadbolt was nicely displayed and it certainly looked good, at least to the uninformed public. To them, a deadbolt is a deadbolt. That is where we, the professional Locksmith, must take it upon ourselves to educate the people in our community.

Photograph two shows the installed Faultless door knob and deadbolt. The good looks are only skin deep. Starting with a claw hammer we made our first assault. We limited the tools at this point to those any child or adult burglar would probably have around. After only a couple of hits with the hammer, the deadbolt was

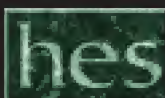
moved downward exposing what I call the "Crescent Of Opportunity." (See photograph 3.)

At this point, the deadbolt is actually circumvented and compromised. This took about five seconds and two blows of the hammer. Photograph four shows our thug

**1. (top right) The Stars of the test: The Schlage B600 series deadbolt, the MAG 747 Heavy Duty Strike, and the Don-J o door plate.**  
**2. (above) Our first assault was a hammer attack on the Faultless deadbolt.**  
**3. (right) A couple of quick blows provided us with the "Crescent Of Opportunity," an opening large enough to reach in and retract the deadbolt.**







(M E!) sticking a screwdriver into the hole to pull the bolt back. A few years ago there was a highly touted system sold by a company that promised the secret of opening all deadbolts without a key. This in essence was the secret. A small hole was made above the lock in which an ice pick was inserted to retract the deadbolt. Improvements on many name brand deadbolts have made this bypass method obsolete.

**D**espite being able to open the door through the Crescent Of Opportunity, we decided to go a little further. Photograph five shows what happened after I used the screw driver and hammer to beat on the deadbolt a little longer. Still we decided not to open the door in this manner. Instead we selected brute force - I got to kick the door open. (I have always wanted to do this.) So, backing up a little, I leaned back and gently kicked the locked door. It literally sprung open The strike went flying as my size 13-1/2 shoe lightly touched the deadbolt. The deadbolt strike screws functioned to help split the door frame, and that was all. ( See photograph 6.)

Who said testing locks couldn't be fun? It was, and it is. Now we proceed on to the real test, the reinforced door and strike plate.

**4. (above, left) Thug opening deadbolt by retracting lock through the Crescent Of Opportunity.**

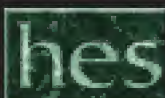
**5. (above, right) Next came a simple screw driver attack. The lock was easily ripped off the door.**

**6. (near right) The kick-in - Easy! And the door remnants - good fire wood.**

**7. (page 41, left) Professional Locksmith installing Schlage deadbolt.**

**8. (page 41, right) MAG's 747 heavy duty strike.**

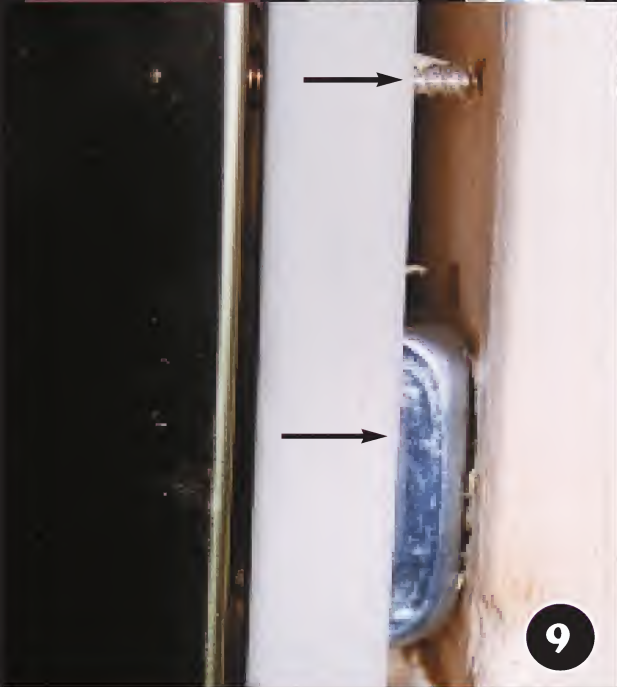
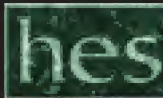




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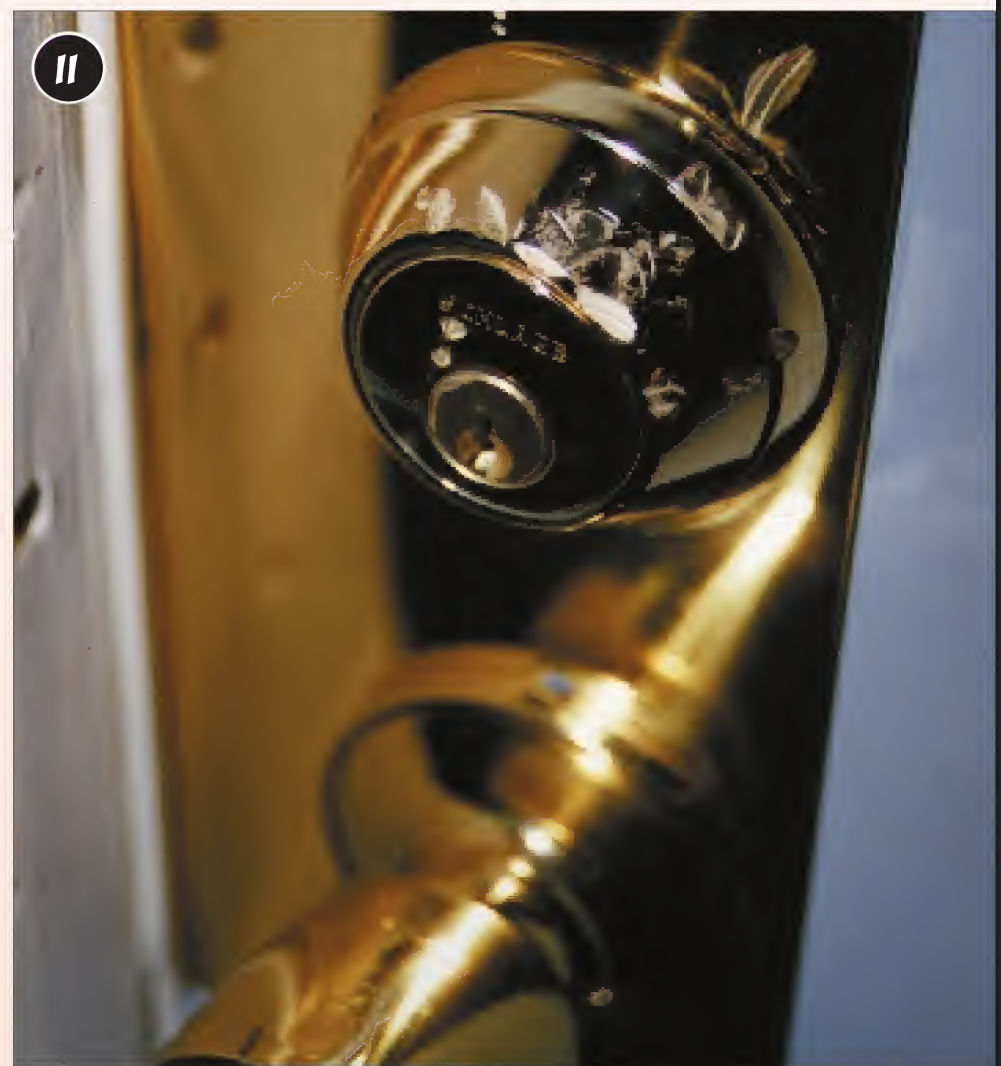




**T**om and I removed the old battered door and re-hung a new door in the testing framework. After truing the door with shim stock, we drilled and installed the guard plate on the door and the reinforcement plate in the jamb. Photograph seven shows me installing the Schlage B 600 series deadbolt on the door. Photograph eight shows the MAG 747 strike installed with two cover screws and two strike screws located on the inside of the box itself. All four screws were 2" in length giving excellent penetration of the jamb and frame. ( See photograph 9.)

The strike must be installed correctly so that the two inner screws penetrate the 2"x4" inner framework that supports the door. This is a formidable installation. To easily install the strike, just mount the cover plate to the frame, and carefully outline it with a chisel. I used to do it with a pencil, but that is double the work. Tom showed me that outlining with a chisel cut out the middle steps.

The completed installation was of the Don-Jo wrap around plate, the deadbolt and, and the doorknob. For the next test we locked and attacked the door knob. As expected, we circumvented the knob with a pipe wrench in about eight seconds. ( See photograph 10.) After twisting the door knob open with the wrench, I was ordered to hammer it off. This



**9. (above, left) The four screws from this unit effectively anchor the strike box firmly to the rough frame behind the jamb.**

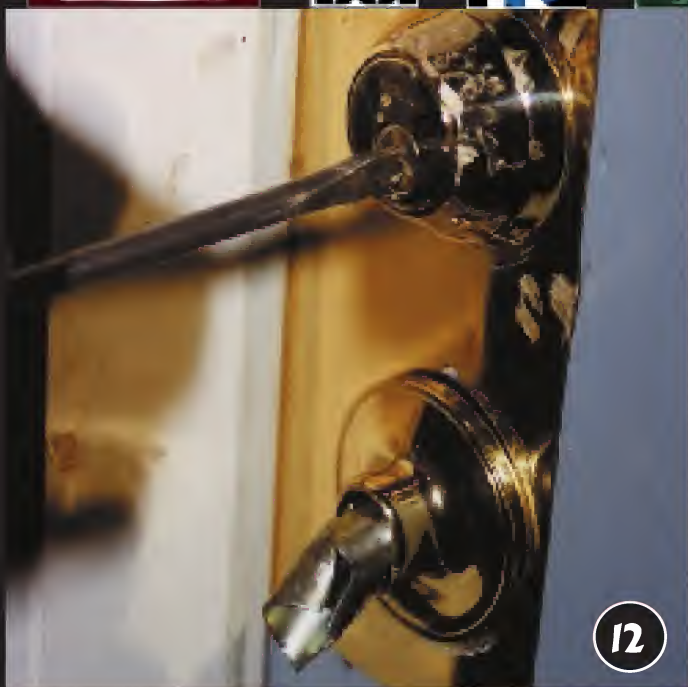
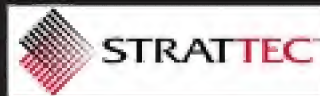
**10. (above, right) Using a wrench on the door knob posed little challenge.**

**11. (near right) Battered but not defeated. Even after repeated hammer blows there is no Crescent Of Opportunity.**

**12. (page 43, left) Trying to knock the cylinder out the back of the lock didn't work either.**

**13. (page 43, right) Pry Bar attack, No Good.**





was adding insult to injury. Nothing was really accomplished but to prove the non-protective feature of the average door knob during a force attack.

The real test followed, however. The crew let me loose and I hammered on the Schlage B 600 deadbolt for about two minutes with the claw hammer. The results? Despite some marring and a few indentations, there is NO "Crescent of Opportunity" here. (See photograph 11.) The deadbolt is designed with a bolt cover or guard and



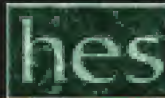
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is seated into the face bore hole, preventing the lock from being knocked out of place. Even if a small opening were made, the bolt cover does not allow access to the bolt.

The Don-Jo wrap around plate added further protection by not allowing the hammer to pierce the sheet metal of the door allowing the lock to loosen or be exposed. The Don-Jo wrap around and the Schlage B 600 withstood the first in a series of assaults.

**N**ot succeeding at knocking the lock off the door, I was let loose with a screw driver and hammer. During this attack I unsuccessfully tried to punch the lock cylinder through the back of the lock. (See photograph 13.)

Photograph 13 shows an attack with a pry bar. This had no effect on the security of the door, except to bend, mar, and disfigure the installation. It was now time for me to, again, kick the door in. And, as I soon found out, it was much easier said than done.

My first kick was at the same force as I had used one hour earlier on the non-reinforced door with the Faultless deadbolt and knob. Despite a level 4 reading on the Richter Kick Scale, nothing happened. I increased the force to a level 7. (Yes, I realize the Richter Scale is a Geometric Progression and NOT a mathematical one.) Me, my body, and my leg bounced off the unscathed door. While the door didn't move, a couple of the supports for the door broke free. Nothing like having the house come down around the door!

**14. (above, left) Marc Goldberg attacking the door. EEEYAH!**

**15. (above, right) Man the battering rams and full speed ahead!**

**16. (page 45, top) Wheels spinning, the door and its hardware withheld the forklift assault (not considered a UL standard).**

**17. (page 45, bottom) To think, it took a forklift at full speed to open this door!!!!**



After replacing the door supports, I gave the door one last gigantic, all-out effort kick, (Level 9). Still, NO results. Not wanting to miss out on any of the self-abuse, several others in the Testing Lab added their own kicks, but none were so great as a 300 pound locksmith/ safecracker could give it. Even our fearless leader and publisher gave it a try.

Marc backed up 20' and rushed the door yelling, "I have steel toed Locksmith Boots on." He jumped up and kicked the door with a Karate kick that should would have crushed most any door. Nothing happened.

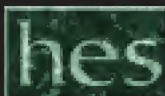
Then he turned around and backed up 30'. He concentrated, focused, and like a professional athlete (bowler) he approached the door at warp speed, jumped, and gave that deadbolt a double diabolical Shudo-Kahn Death kick. Again, the door withstood the competent attack that a lesser prepared door would have easily acquiesced to. Marc's banzai assault can be seen in photograph 14.

As Marc landed, unsuccessful, a strange smile crossed his frustrated face, slightly reminiscent of the Grinch before he burgled Who Village. Vaulting to a nearby YALE forklift, Marc stated that it was time for the door to DIE.

Not wanting to crush the wall of the Testing Lab, he decided not to ram the door, and instead placed the forklift blades up against the door, putting gradual pressure against our reinforced locking system. (See photograph 15.)

Once touching the door, he stepped on the propane. The wheels started turning but the door and its hardware held. Marc increased the speed and the door still did not open. Marc floored it. The wheels burned through the floor tile





and into the cement. (See photograph 16.) Suddenly, and finally, the door crashed open.

The result? The strike plate split, the frame was slightly cracked and, except for two large dents from the forklift blades, the door remained unscathed. (See photograph 17.) An incredible display of what some rather inexpensive additions to a deadbolt installation can do.

**A**fter viewing the damage, it was evident that the eventual strike box failure was due to the extensive twisting and bowing of both the door jamb and the framework. In a home, drywall and other wall components may make for an even more rigid framework, better supporting the strike, and making the entry even harder!

So, while the forklift assault has not yet been added to the UL Standards Test, The National Locksmith Test Lab and demolition crew has provided you iron clad proof that your customers are safer when using the right equipment - these products really do work! With this article in hand, its about time to offer more security to your customer and more profit for you - install the right equipment and everyone Profits and Prospers. **TRL**



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## STAY WITHIN THE LINES!

Not much is harder than fitting a lock to a hole not cut correctly.  
So, why not do it right the first time.

by Steve Gebbia

As any locksmith will tell you, the most important part of any installation is the proper location of the mounting holes. Not only must the holes be in the correct location, but they must also be drilled straight. There are many different tools to help you accomplish this. Choosing the right tool for the job can make the difference between a professional installation and one which is merely acceptable.

### Templates

Manufacturers include installation templates with their locks, and these can be easily used for preparing a door without an existing opening. However, they are not foolproof.

One of the biggest mistakes made when using templates is not taking into account the beveled edge of the door. A template must be located so that the backset of the lock is determined from the center of the door bevel. Some templates take this into account and include marks to indicate various door bevels.

When using a paper template to locate the mounting holes for a lock, the template should be taped to the surface of the door and not just held in place. It is very difficult, if not impossible, to hold a paper template in place and mark the mounting holes without moving the template.

### Boring Jigs

One of the most useful tools is a boring jig. These allow you to accurately locate a hole with little or no fuss. You must install the jig properly and drill straight, but the job will go quicker with little chance for error. Generally a boring jig is intended to prepare a door for a



1. Boring Jigs like the ones above provide fast, accurate installations.

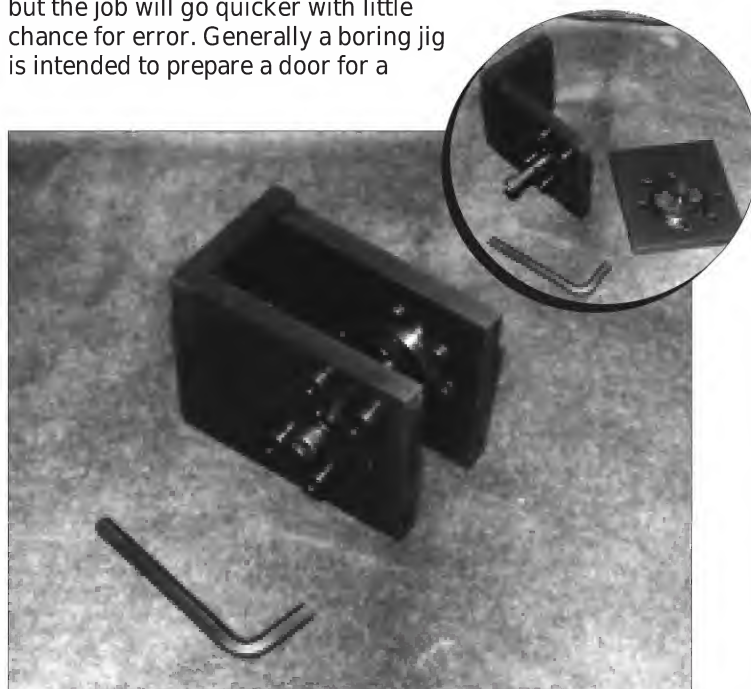
specific type of lockset. It is a tool that does one job and does it very well.

Perhaps the most common jig is intended for installing a cylindrical lockset. As shown in photograph one, there are several versions of this tool. The most versatile of these allows you to choose door thickness, backset, and diameter of crossbore. The most important thing to remember when using this tool is to adjust it properly for door thickness. The entire tool must sit flat on the surface of the door. If not, the tool will shift while you are drilling and the hole saw will skip across the door.

This tool really shines when reboring an existing hole. Older locksets required smaller crossbores than today's locks. Since this tool does not rely on a pilot bit to guide the hole saw, it greatly simplifies the task of enlarging smaller holes.

There are, of course, many different styles of boring jigs available today. Each of these has its own special application. Some of these tools are relatively inexpensive and make a valuable addition to your toolbox. Others are highly specialized, more expensive tools that are only cost-effective if used on a regular basis.

One such tool is the mortise lock boring jig. This tool will greatly simplify the task of preparing a wood door for a full mortise lockset. The resulting installation is quick, clean,



2. The HIT-1 by Major Mfg. makes lever conversion much easier.

Continued on page 48



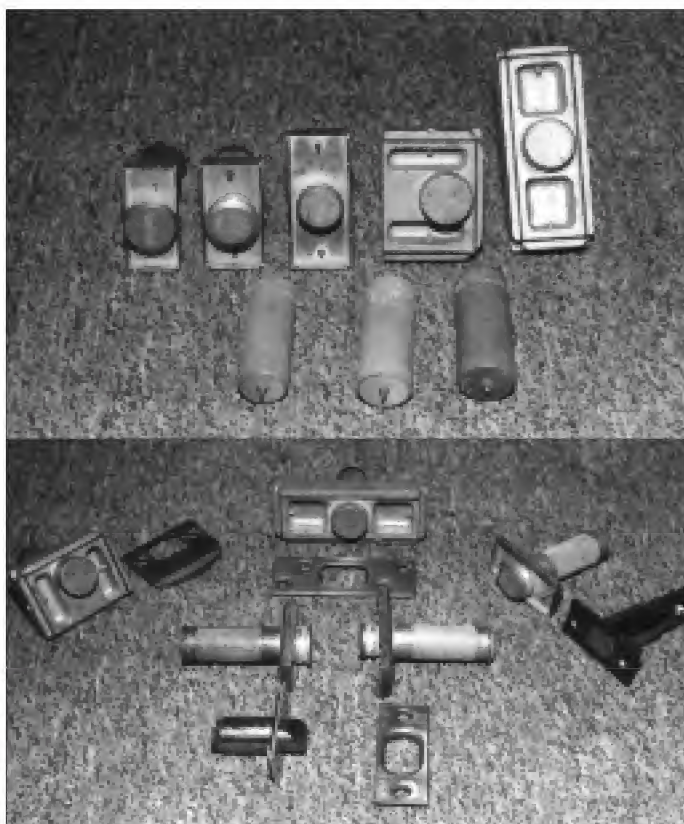
Continued from page 46



**3. Templates, like these from Security Lock Distributors, give almost factory appearances to aluminum door cutting.**

and professionally done. Although costly, this tool will pay for itself in time saved and headaches avoided.

With the passage of the American with Disabilities Act comes the need to replace existing locks with keyed lever sets. Locating and drilling for the anti-rotation posts often allows the drill bit to wander into the existing crossbore. The HIT-1 template from Major Mfg. is one tool that greatly simplifies location and drilling of these holes. (See photograph 2.) Designed to work with several different locks, it is deceptively simple. A bushing accurately centers the tool over the crossbore and a hardened steel bolt securely clamps the jig to the door. Simply secure the tool to the door and drill the mounting holes.



**4. Marking chisels and center points make for quick, clean strike mortising.**

Perhaps the most intimidating installation for a locksmith is a new installation of a lock in an aluminum door. Cutting the opening accurately and cleanly can be a real challenge without a tool designed for that specific task. Shown in photograph three templates made for preparing an aluminum door and frame by Security Lock Distributors. Designed to work with a router, the templates allow the installation of a variety of locks and electric strikes in aluminum doors and frames.

### Specialty tools

In addition to boring jigs and template sets there are a variety of other tools that will greatly simplify your job. Many of these will speed the installation of a lock. All of them, used correctly, will result in a cleaner, more professional installation.

Shown in photograph four is a group of marking chisels and center marking tools to help mark the outline of mortise cuts for bolt and latch units as well as for strike plates. These will accurately mark the location of your mortise and give your mortise a clean edge.

Also for installing deadbolts the Squeeze Play by Sieveking Products is excellent for preparing the edge of a steel door for a standard deadbolt. (See photograph 5.) Before this tool was available, there were few options for installing locks in steel doors. You had the choice of using a drive-in style bolt unit or cutting the opening and using mounting tabs. Both of these had their drawbacks.

Drive-in style bolts have a tendency to come loose in a steel door, especially when subjected to abuse or improper alignment. Using mounting tabs provides an attractive, secure installation but is time consuming and requires accurate measurement and marking of the opening for the bolt.

The Squeeze Play gives you a solid, attractive installation with little fuss. Because of the variety of methods used to manufacture steel doors, this tool may not work on every steel door. It is designed for use on steel doors with the seam toward one side of the edge of the door.

HPC's HDPS-4 and SPD-700 Metal Punch and Die sets aid in the installation of cam locks in metal drawers or cabinets. (See photograph 6.) In a wood drawer, a spur washer can be used to prevent the lock from rotating within the 3/4" hole. Obviously, this won't work on a metal drawer. The ideal solution is to provide a hole with flat sides to prevent rotation. The Metal Punch and Die sets will cut a clean hole in sheet metal for either a double D (HDPS-4), two flat sides, or a single D (SPD-700), one flat side.

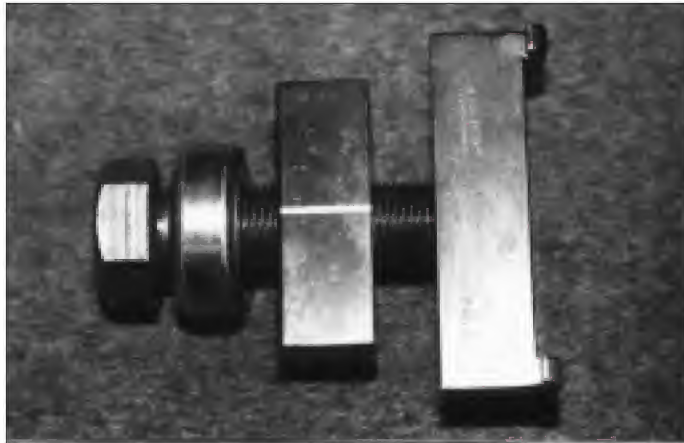
Simply drill a pilot hole at the proper location, assemble the tool in the hole, and tighten the nut. As it tightens, the tool bites into the metal and cleanly punches its way through the material. The result is a hole which is not only neat in appearance, but also properly secures the lock within the drawer.

### Cutting Tools

Even with the variety of jigs and specialty tools available today, the tool that actually cuts the opening is still the most important. High quality hole saws and drill bits will last longer, cut cleaner, and generally make the job more pleasant. There is nothing more frustrating than trying to use a tool that just won't cut through the material.

At times, you will need to make custom-sized openings in steel frames. Use of the proper tool will greatly simplify your





**5. The Squeeze Play by Sieveking Products form a steel door edge for using a standard deadbolt with faceplate.**

task. Make sure to use a tool designed for the material you are cutting. Dremel tools, die grinders, and plasma cutters all have their specific uses. Each of these is designed for a specific thickness material. Don't try to push your tools past their limits. If the material is too heavy for a Dremel tool, then use a die grinder. If it is too heavy for a die grinder, then use a plasma cutter.

There is such a wide variety of tools available today that finding a tool to do the job won't be difficult. As a professional, you look to find ways to provide a more perfect installation while making your job easier. For every job there is one tool which will do the job better than any other.



**6. Using one of HPC's Metal Punch and Die sets allows clean cutting of sheet metal for either a double D or single D holes.**

Choose your tools carefully. Use them properly. Strive for perfection.

For more information on the tools above contact:

The HIT-1 is available from Major Mfg. at 714-772-5202.

The Security Lock Distributors templates are available through a Security Lock Distributors distributors.

The Squeeze Play is available through Sieveking Products Co. distributors.

The HDPS-4 and SPD-700 are available through HPC distributors. 



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Cover  
Feature

# A NEW HEAVY WEIGHT CONTENDER:

## SCHLAGE'S B600 DEADBOLT

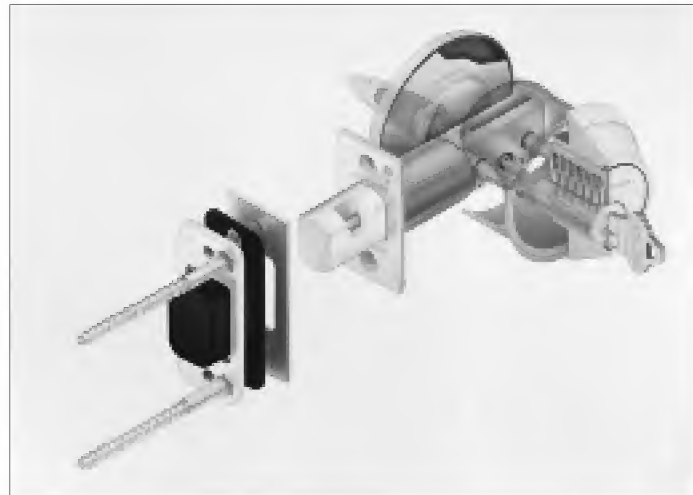
by Tom Mazzone

**S**chlage Lock Company, who as of late has been advertising itself as the "Doberman" of locks, has added a true bulldog into its series of residential and commercial deadbolt applications. The B600, B700, and B800 series deadbolt are Schlage's new participants in the world of crime prevention. While these locks are tough as nails, Schlage has managed to maintain their attractive, architectural appearance. All of the above mentioned locks are available in seven of Schlage's most popular finishes. (See illustration 1.)

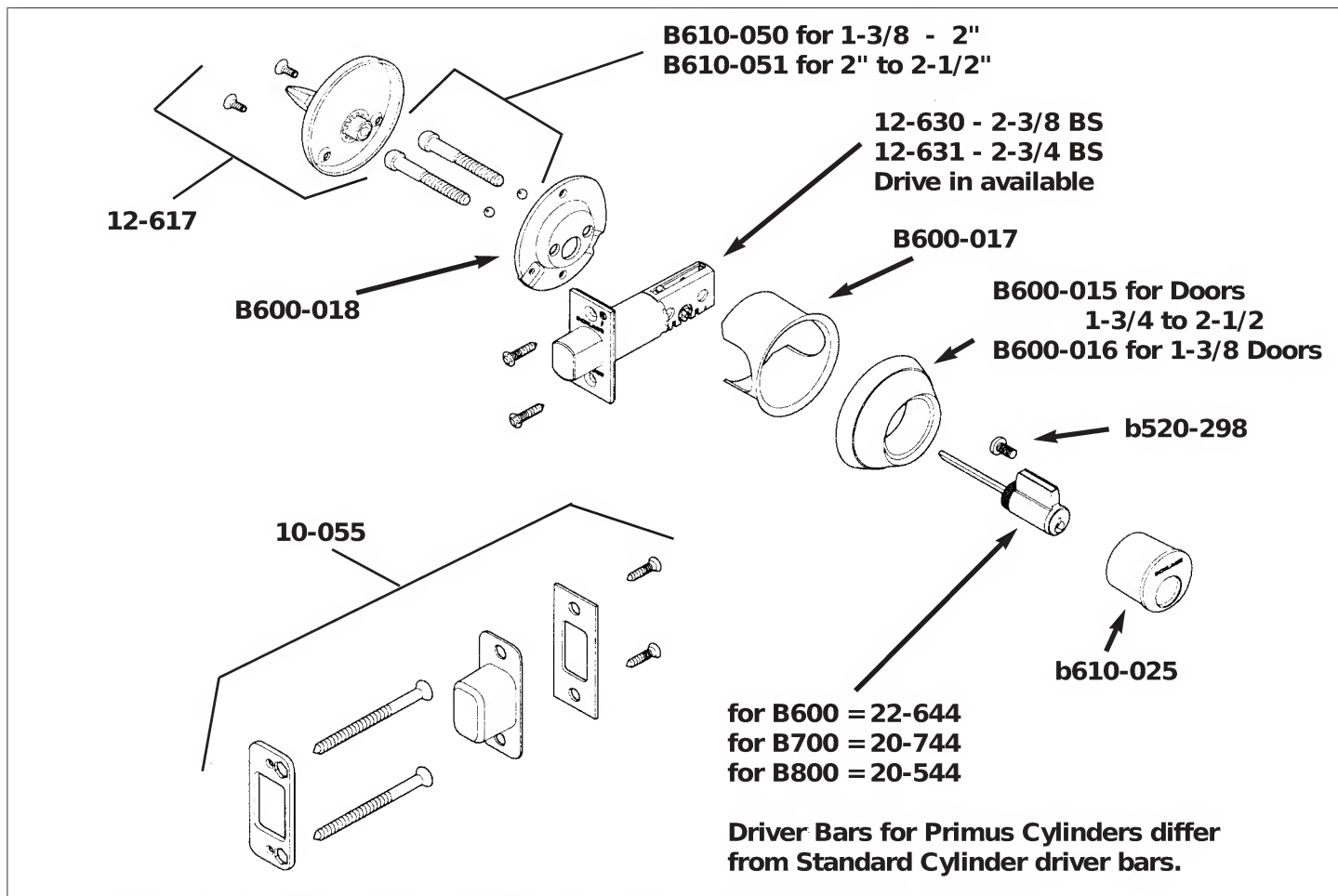
The first truly noticeable change is the solid trim rings. These rings are made in either solid brass or bronze depending upon their application. The rings are machined to a very attractive finish with a steep taper. The taper helps to deter an attack with a pipe wrench by not permitting the wrench to get a good bite on the ring.

A metal shield is included to prevent a "through door" attack to the latch with an ice pick or a thin screwdriver. The

Schlage Lock Company, who as of late has been advertising itself as the "Doberman" of locks, has added a true bulldog into its series of residential and commercial deadbolt applications.



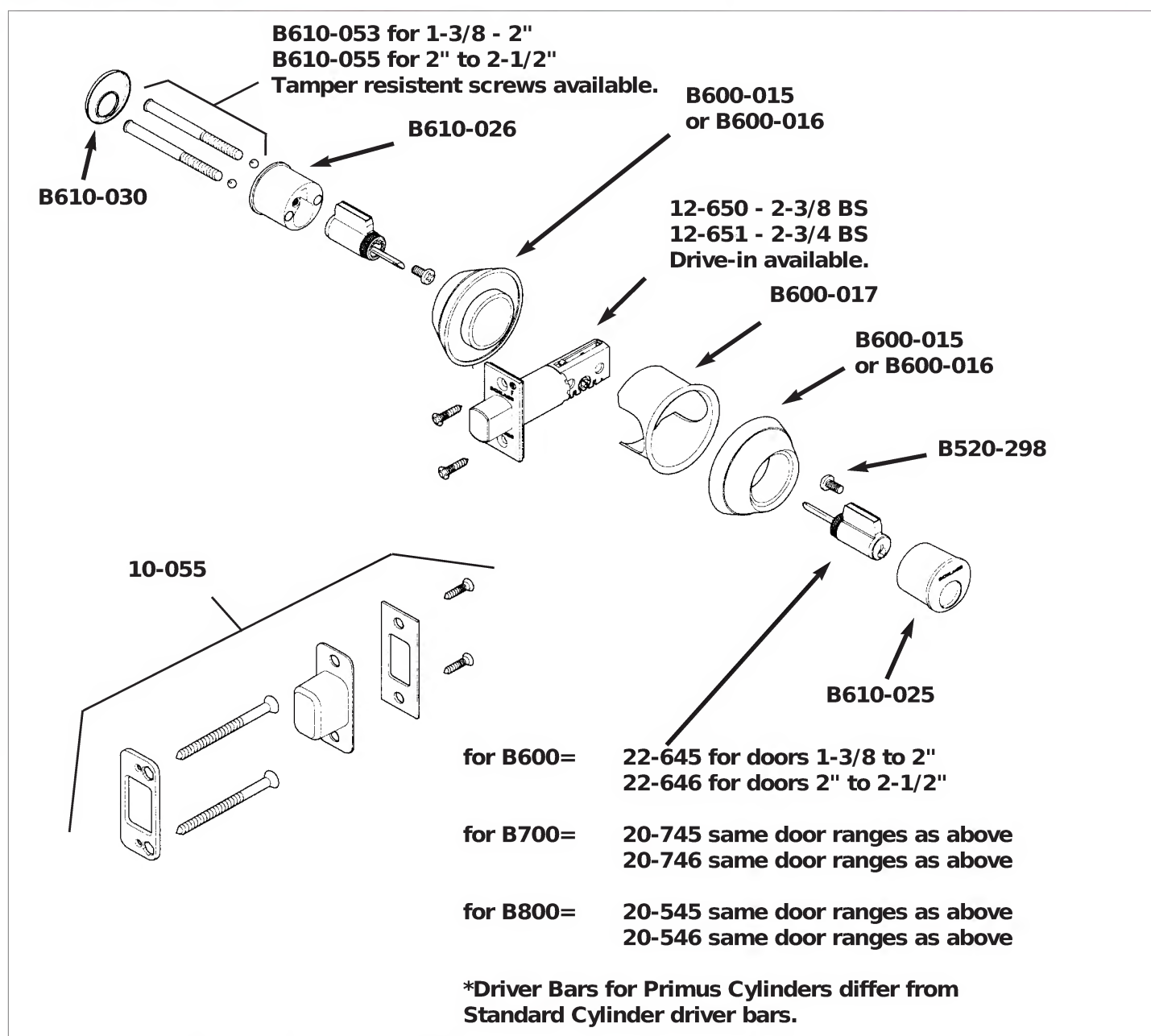
1. Schlage's new contender in Grade 1 deadbolt hardware - the B660, B700 and B800 series deadbolts.



2. Parts list for Schlage B600, B700 and B800 single deadbolt.



Continued from page 50



### 3. Parts list for Schlage B600, B700 and B800 double deadbolt.

shield requires a 2-1/8" cross bore door prep. Doors already equipped with a 1-1/2" door prep can either be enlarged or the shield can be left out if used on a door yielding a lower degree of security.

The next most noticeable change is the deadbolt latch. The prep is a 1" edge bore with a 1-1/8" x 2-1/4" face plate relief for a mortise latch. This latch is also available as a drive-in latch.

There is a definitive, solid action when the deadbolt is completely extended and deadlocked. On the bottom of the latch is a strip of spring steel that maintains constant pressure on the deadbolt cam giving the positive movement of the bolt. The cam itself is also of a heavier duty design. Coupled with a built in anti-saw roller pin within the deadbolt latch itself and the exclusive strike reinforcer included in the package, this lock is extremely resistant to a kick in type of attack.

The through bolts are 1/4" (6mm) steel bolts and are

another quality feature. The addition of the included steel ball bearings that precede the bolts into their mounting holes offer drill resistance from the outside at the mounting bolts.

The B660 series has an attractive ergonomically designed thumbturn that affords ease of operation and very comfortable use. The B662 series or double cylinder lock has a finished scalp on the inside cylinder that completely covers the mounting bolts, helping to prevent them from being unscrewed from the outside through a broken window. Tamper proof bolts are also available. The B600 series are also available with IC Core capability.

The B760 series has all of the same features as the B660 with the addition of a Primus 20-700 high security cylinder. The use of a Primus cylinder with this deadbolt gives the user the ability of key control and very high pick resistance. Again, all of the same finishes are available as with the B600 version as well as IC Core capability.

Continued from page 52

### Available functions for the new B series deadbolts: Functions - ANSI A156.5, 1992

#### Single Cylinder Deadbolt

Dead bolt thrown or retracted by key from outside or inside turn unit.

Schlage ANSI

B660 E2151

B760 E2151

B860 E2151

#### One Way Deadbolt

Deadbolt thrown or retracted by key only.

B661P E2161

B761P E2161

B861P E2161

#### Double Cylinder Deadbolt

Deadbolt thrown or retracted by key from either side.

B662 E2141

B762 E2141

B862 E2141

#### Classroom Deadbolt Lock

Deadbolt thrown or retracted by key outside.

B663 E2171

B763 E2171

B863 E2171

#### Cylinder Lock

Deadbolt thrown or retracted by key from one side.

B664

B764

B864

#### Door Bolt

Deadbolt thrown or retracted by turn unit only.

B860 E2191

The B860 is the extra heavy duty version featuring all of the previously mentioned features with the addition of a drill resistant high security Primus 20-500 cylinder. Seven drill resistant pins are placed strategically in the plug to protect shearlines of the pins, finger pins and sidebar. All three series of deadbolts are available in either single or dual cylinder applications.

The cylinders are all bored for six pin application making them easy to integrate into any existing master key system. The high quality control and tight tolerances of these Schlage locks make these new products formidable foes to the would be burglar.

See illustrations two and three for a listing of parts. 

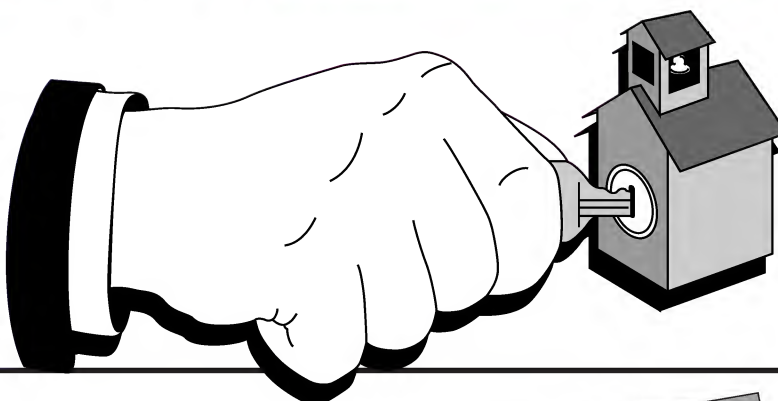
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Acme School  
Of Locksmithing



Lockmasters, Inc.



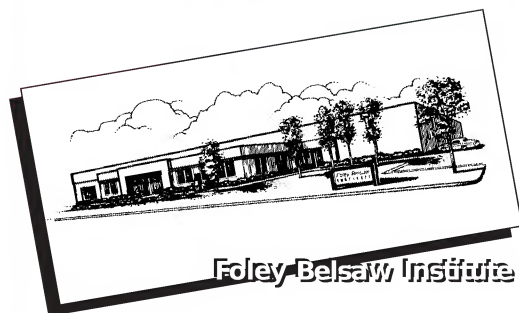
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**Doin'  
It**

**Knowing how is only part of the process.  
Performing the job involves the right equipment and  
finding the right customers.**

## **WITH BEST/ FALCON, PART III**

**by Jake Jakubowski**

In January's article on interchangeable core service, I detailed the basics of Best/ Falcon interchangeable cores and cylinders to familiarize you with their operation. In that article, I also mentioned that you could get into the interchangeable core lock business for about a thousand dollars and some effort on your part to learn how to work the system.

In February, I showed you how to generate a pinning chart for a Best/ Falcon system and how to pin a Best/ Falcon core. I also told you a little bit about where to find IC core type business - if you were so inclined.

This month, I'm going to show you several machines for code cutting Best/ Falcon IC core keys, without them you're spinning your wheels if you try to do IC core work. I'll give you their suggested prices, show you how you can get into this profitable line of work for a grand - or less. And, give you more ideas on where to look for interchangeable core business.



**1. The HPC 1200CM.**

In a later article, I'll show you how to bypass a Best/ Falcon type cylinder, how to pick a core to the control shear line and how to read the pin stacks in a core you don't have a key for!

Photograph one shows an HPC 1200CM on which I have cut many a Best/ Falcon key. In fact, until I obtained a Best Combinator, I used my 1200 exclusively to generate first keys whenever I needed an original key for an IC core system or lock I was working on. As far as I'm concerned, if you want to enter this profitable market, and already own a 1200, it is more than capable of doing the job you want it to.



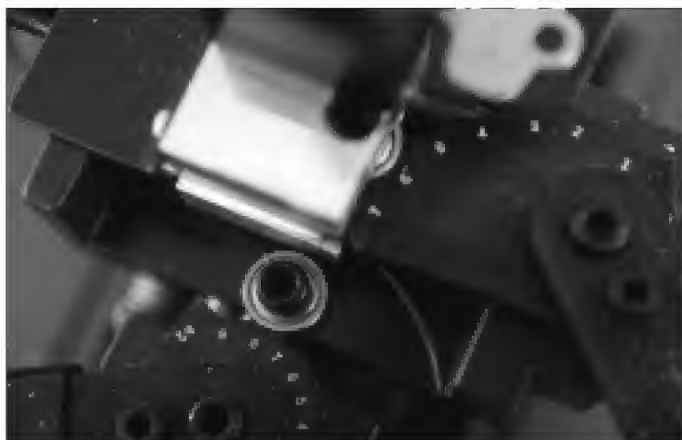
**2. The keys are easily loaded into the 1200 using the tip stop. Some keyways require shimming or special clamping.**



**3. The Framon IC-234.**



4. Framon's IC-234 includes a built in tip stop.



5. Framon's depth and space cams are lever operated.

Until recently, you were only able to cut a 6-pin IC core blank on the 1200 - which I think you will find to be the majority of the work you do in this line. However, HPC now produces a code card for the 1200CM (Card C3) that will allow you to generate 6 or 7-pin Best/ Falcon IC core keys.

The only inconvenience that I find in using the 1200 to make Best/ Falcon type keys is the need to "shim" some of the keyways you might be working with. An alternative is using a straightened key ring or paper clip inserted into the key's grooving. (See photograph 2.)

Regardless, HPC's 1200CM is a

work horse and cuts a good, workable Best/ Falcon type key, in short order. The 1200 is available in the standard A/C, or the D/C model, and a "Blitz" version has recently been introduced.

Photograph three, shows the Framon IC-234 IC core code cutting machine for Best/ Falcon, Kaba and Peaks IC core keys (This machine will originate keys for Best A-2, A-3, A-4, Peaks and Kaba.) The Framon IC-234 is fast, accurate and simple to use. If you're already doing a lot of IC core key work, Framon's IC-234 is a machine you might want to consider adding to your shop or service van.

To use the IC-234 simply index the key with the built-in tip stop shown in photograph four, turn the machine on, and use the lever shown in photograph five to determine your spacing your selected depth. There's just no chance of cutting a "bum" key if you set everything up properly.

I found the Framon IC-234 to be user friendly, fast and accurate. In all, an excellent machine to do production work on.

Photograph six is of my Best Combinator. The reason that I have included it, is to show you what one looks like and how it operates since the majority of locksmiths seldom, if ever, get to see one. Best will not sell these machines to locksmiths, so your only chances of obtaining one is to find one in a flea market, or come upon one at the odd business equipment sale. If you're fortunate enough to find one, pay whatever you feel comfortable with to get it.

Photograph seven shows a key blank indexed in the carriage with the

detent holding the key in place. As I select my depth and push down on the handle at the top of the machine, that depth is cut and the carriage is advanced to the next space automatically. (See photograph 8.) The only times my Combinator delivers a miscut is when I dial in the wrong depth.

Photograph nine shows A-1 Manufacturing's IC Pack-A-Punch - a hand-held IC core key cutter that is accurate, easy to handle, sturdy and economical. It is capable of cutting keys for Best/ Falcon A-2, A-3 and A-4 systems. For duplicating those keys, A-1 has included a key gauge so you

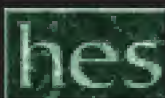


6. It's unlikely that a locksmith will get his hands on one of these Best Combinators.



7. Key inserted into Combinator.





Continued from page 60

can decode the customers key, and cut them another original key.

Photograph ten shows a key blank indexed against the tip stop and ready to be cut. In photograph 11, you can see the depth wheel that will determine the depth of the cut. Each time that you cut a depth, you use a knob on the front of the machine to move the carriage to the next space to align the blank for cutting and squeeze the handled

If you're cutting anything over a number six depth, I recommend that you first cut a shallower depth (a four or a five) and then cut the seven, eight or nine that is required. this will insure the accuracy of your cut and also make it easy for you to compress the handle that actuates the cutter head.

Another code cutter that deserves mention is HPC's 1200PCH Punch Machine™. (See Photograph 12.) Like its 1200CM counterpart, the 1200PCH uses code cards (although they are not the same as the CM machine),

making IC core key cutting fast and accurate. In fact, for on-the-road use, this little dynamo is not only extremely portable and doesn't require electricity, it cuts a wide variety of commercial and automotive blanks as well.

The advantages are obvious. Whether you're sitting on a dealer's lot cutting keys to an old Chevy, or cutting IC core keys on site at the local Walgreens, you've got a machine that'll go anywhere you go. There's no lost time looking for power outlets or running extension cords. A few simple settings, add the code card and your key is being cut.

Another nice feature, especially for us 1200CM users, is that the operating principles of the Punch Machine™ are almost identical to those of the 1200CM. Simply insert the P3 card (to cut IC core) and then use the space and depth dials to set the appropriate bittings. Then a gentle downward motion on the lever easily punches the key. (Stay tuned to next month's issue for a more complete field test of the 1200PCH.)

While we're on the subject of key machines, duplicating IC core keys on most duplicators can be a taxing experience especially if you are trying to generate a second, or third, generation duplicate. Therefore, I recommend that you use your HPC 1200CM, 1200PCH your Framon IC-234 or your A-1 Pak-A-Punch to cut duplicates whenever possible. This insures that your customer is going to



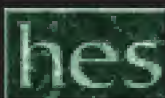
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difference between  
a taxidermist and  
a tax collector?  
The taxidermist  
takes only your  
skin."***

***-Mark Twain***



**8. Selecting the depth.**

get the best (no pun intended) and most accurate second key available.

If you can't or don't want to code cut every IC core key you are asked to duplicate, then make sure your duplicator is properly aligned and that you accurately index the key by its notched tip stop. Photograph 13 shows the key stop on an Ilco "Mini" being used to properly index a Best/Falcon key blank.

Whether you buy the needed equipment and inventory all at once or a little at a time, the important thing is that as soon as your able, start to practice pinning cores. Get out your January and February issues of The National Locksmith and Don O'Shall's book - study the information they contain and practice the procedures they outline. In very short order, you can teach yourself how to service Best/Falcon type IC cores.

Now, where and how do you sell interchangeable core locks and service? Folks, no offense intended, but that's like asking what bears do in the woods! Start out by reviewing your own current commercial, industrial

and institutional customer list. Particularly, look for those customers that have a high management and personnel turnover rate.

Even if the customer is only a small restaurant with two doors that need rekeying, that customer can be a candidate for an IC core sale! Why? Because with a Best/Falcon system, that restaurant can enjoy the same benefits that a multiple location user would. They have the ability to instantly lock out an employee - for whatever reason. Also, they have better key control capabilities since most hardware



**9. A-1 Manufacturing's IC Pak-A-Punch.**

stores and home centers seem to have difficulty cutting IC core duplicates even when they have the proper blanks available. And, that fact alone, practically precludes your customer's employees from having unauthorized duplicates made.

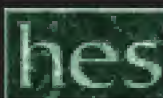
**Continued on page 65**

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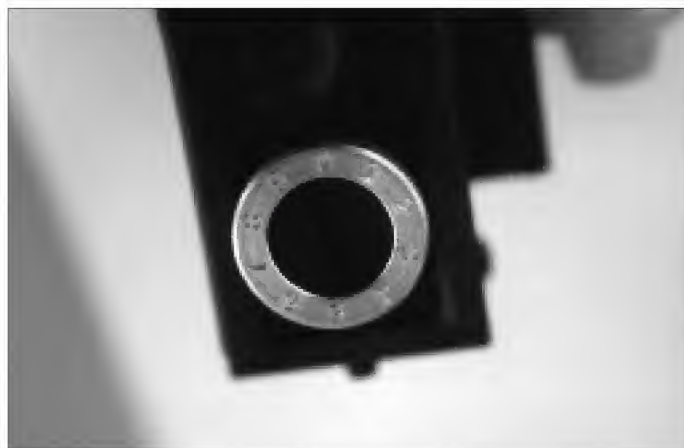




Continued from page 63



10. Key inserted up against the tip stop.



11. The depth wheel of the IC Pak-A-Punch.



12. The HPC 1200PCH Punch Machine™.



13. Tip gauging the key on the Ilco "Mini."

With larger users, a manufacturing facility or a group of convenience stores for instance, the same benefits apply. You offer them the ability and added security to quickly rekey a door or store and give them a tighter rein on unauthorized key duplication.

In addition, by switching a customer from regular cylinders to Best/Falcon type cylinders, you tend to lock that customer into your system. That means that all of their rekeys, duplicate keys and system expansion work should come to you. After all, you set the system up and have the ability to service it.

**T**o make a Best/Falcon system work for your customer (regardless of their size), you not only sell (and install) the actual number of cylinders and cores that they need, you sell them a reserve of cores to give them the ability to change cores when needed. Then, when they lock out an employee, they send you the old cores and have you rekey them and send them back.

True, by leaving the customer the extra cores to change themselves when necessary, you can lose your normal service call fee on some of the rekey work that you do for them. And, although the idea of selling the customer cores that they can change themselves may not sit well with some

readers, you have to consider that the whole point to this exercise (as making you money) is: Customer convenience.

Take my word for it, in the long run, you will not lose anything since the customer will send you the cores to rekey, and you just have no idea how many cores management loses

that need to be replaced - at full retail, of course!

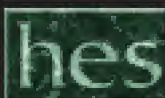
How profitable can this type of work be for you? Look at the costs for cores, cylinders and keys that I outlined earlier. Add to those prices your normal mark-up on the hardware, your rekeying fees (which should be higher for Best/Falcon than for standard cylinders), your key generation fees, installation and service call fees, and see how much you could make doing this type work.

Done for now, but in the meantime, catch up with me next month when I get to show off some neat tools and equipment. Doncha' dare miss it - Y'all heah! **RL**

### Security:

*"Happiness has many roots, but none more important than Security."*

*-E.R. Stettinius, Jr.*



### ...INDUSTRY INTERVIEW (continued)

Let's face it, for the locksmith who continues to learn and educate himself, he will have a chance to install card access systems, electric door operators etc. This will open up a whole new area for him to expand his business. During the past 10 years I've seen many locksmiths expand their business in this way.

If you had just one thing to say, Jan, what suggestion do you have for the locksmith?

I'm beginning to sound repetitious but customers are going to be looking for the latest locking technology, and electronics is a big part of it. So, the more the locksmith learns about it the better he can take care of his customer.

TNL

**HPC** is proud to announce the **1st** winner in their monthly Codemax™ drawing. **HPC** has awarded a Codemax™ computerized key machine to **Roberto J. Morales** of **Western Lock** in **Hialeah, Florida** on **March 1st**. It was purchased through **Locks Company in Miami, Florida**. **HPC** will be awarding a Codemax™ to a lucky



locksmith every month through February 1996. To qualify, locksmiths simply need to purchase any 1200 Series Key Machine and send in their registration card along with a copy of their distributor invoice to **HPC**. Once this is done, they will automatically be entered in the contest. Entries will remain eligible until the conclusion of the contest. A total of over \$47,000 will be awarded. There are still **eleven** more chances to win.

**Tom Leppert**, Senior Vice President of Marketing/Sales and President of International Operations for **Sargent & Greenleaf**, has appointed **Gary Kepler** to the post of **Director of Marketing**. Gary has been in charge of S&G's Customer Service Department since joining the company in 1985.

**Brian Costley**, Director of S&G's Education Department since 1989, has been named **Director of Customer Services**. Brian is a Certified Master Locksmith and a Certified Master SafeTech who has been active in the lock and safe industry since 1971.

**E**ffective January 1, 1995, **Hanchett Entry Systems, Inc.** will no longer be supplying **Security Door Controls** with the 1003 series electric strikes nor related products on an OEM basis. Therefore, the S.D.C. 16 series, as manufactured by H.E.S., will no longer be available from S.D.C. To ensure the transition will not adversely effect any customer, a cross reference chart of the S.D.C. model numbers and equivalent H.E.S. numbers can be obtained from H.E.S. at 800-626-7590.

**B**eing honored here by **Jan Mirku** President (Left) of **JLM Wholesale**, **Pat Plumb** receives her 5 year pin. Pat is responsible for all the book keeping and manages the accounts payable department of JLM. Her 5 years of diligent work has



benefited JLM immensely. Her commitment to detail and persistence in doing an exceptional job has positioned her as a key person in JLM's organization.

**MONACO LOCK COMPANY, INC.** introduces its first in a series of quarterly newsletters to keep you better informed of new product developments, industry news, and company information. The newsletter will feature technical information as

well as editorials from our manufacturers' local reps. All articles are kept easy to read and informative. Current or back issues will be available upon request.

**A**dvanced Hardware Technologies, Charlotte announces their move into a new facility at 508 Griffith Road Charlotte, N.C. 28217. Phone 800-277-9377 Fax: 704-525-7337.

**S**outhern Lock and Supply Co. is pleased to announce the creation of an all new Electronic Access Department. A team of high tech experts, headed by **Jim Kowbel**, is now available to guide their customers through the most difficult problems, and furnish them with the best possible solution.

**Don Kennedy**, former inside sales rep, has been promoted to Outside Sales Representative for the Atlanta-based territory.

**G**reater Chicago Locksmiths Association announces the election of its 1994 to 1995 Officers and Board of Directors.



Pictured are (left to right): **Al Zaniolo** Treasurer, **Tony Ruberti** Board, **Tom Mazzone** Secretary, **Giles Kalvelage** Vice President, **Kathy Zaniolo** President, **Art Misiewicz** Board, **Steve Gebbia** Board, and **Larry Hughes** Sgt. at Arms. Also pictured, at podium, is past President **Robert McCown**. Not pictured are board members **Destin Bowles**, **John Greenan**, **Tom Seroogy**, **Leonard Wagner** and **Gene Smith**.

**T**he annual officer elections of the **Locksmith Association of Connecticut** resulted in the election of the following officers: **President, John Labbe; Vice President, Fred Griswold; Treasurer, Paul Peterson; Sergeant-at-Arms, John Robida; Secretary, Dennis Herner.** TNL



# LIGHTER SIDE

## A Learning Experience

**"Y**ou look like the cat who ate the canary," I said to Don as he passed my desk on the way to his office. "I assume everything went smoothly?"



by  
Sara Probasco

"Couldn't have been better," he replied, removing a small yellow feather from the corner of his mouth. He was whistling happily under his breath.

What a switch! This had been one of those days when the gremlins were out in full force; everything had been going wrong, around the shop.

Curiosity pulled me from my desk, and I followed Don into his office. "Well?" I asked, eager to hear details of his success.

"Well, what?" he asked.

"Tell me what happened."

"Oh, nothing much. You're just married to a genius, that's all. At least that's what Mr. Collins said I should tell you." His smile widened.

After a little coaxing, Don opened up.

A Mr. Collins had called in that morning to say he had lost the keys to his vehicle. At Don's request, the man read off code numbers that had been written on his owner's manual when the vehicle was purchased. Don cut a key before leaving the shop - a fact he did not mention to the customer.

Arriving at the scene, Don walked directly to the vehicle, inserted the key, and opened the door.

"Wait a minute!" Mr. Collins exclaimed. "How'd you do that?"

"Nothing to it," Don replied. "You just have to know how to hold your mouth."

Collins scratched his head. "I've lost keys before, or locked 'em up

inside my pick-up, and had to call a locksmith. They fiddled around, filed on a key blank, jiggled it around in the lock, filed some more, on and on. Sometimes, they'd run some kind of long, bent-up, metal gizmo down inside the door and fish around a while. You didn't do anything like that. I was watching you. You just stuck that key in the door and opened it right up, slick as a whistle. Now, how'd you do it?"

Smiling, Don used his old stand-by phrase: "It's Magic!"

"Come on, now, quit pulling my leg," Collins said. Then his face lit up. "I know: you have one of those master keys I hear people talking about — you know, the kind that opens all the different kinds of vehicles. That's it, isn't it?" Don couldn't help laughing aloud. We so often hear tales of wonder about the mythical "master key" that works such wonders. He finally confessed. "You know the numbers you gave me off your owner's manual? Actually, I cross-referenced that code and was able to cut a working key before I left the shop."

"Oh," Collins said, a bit disappointed. After all, there was something almost mystical about the famed "master key." Practicality couldn't hold a candle. Still, he was impressed with Don's skill and knowledge. "I didn't know you could do that," he admitted.

"It's all in knowing how," Don replied.

"How did you learn locksmithing?"

"Partly from doing it, but mostly from attending classes and technical seminars, and from studying books and articles, over the years. I take all the classes I can afford every year, to upgrade my knowledge. It's an ongoing educational process."

**"W**ell, I'm glad you've learned how to do these things. I'd sure be in a mess this morning, if you

hadn't."

"Kind of like I would be if things were reversed and I had to tend to your goats," Don said. "That's an area where I'm pretty ignorant."

Collins grinned. "I guess that's why I'm a goat rancher and you're a locksmith."

"Could be."

**N**o doubt, you've heard the expression, "A little knowledge is a dangerous thing." Well, a little ignorance can be frustrating as the dickens.

I had already gone home, after closing the store one evening, when a call came to open a vehicle. It was at one of the local veterinary clinics which was located on a farm-to-market road outside of town. The woman calling sounded desperate. She had apparently exhausted all other possibilities of assistance, and the last, lingering employee of the clinic was impatient to lock up and go home.

"Don's out on another call right now," I told her, "but he should be finished soon. Give me the phone number there, and I'll call you as soon as he checks in, so you'll know he's on his way."

"They're locking up, here, right now," she said, "so there's no use in trying to call. Just send him out as soon as you can."

I told her what the charge would be - something we always do, so there won't be any misunderstanding - and I assured her Don would be there shortly.

When he arrived at the site about twenty minutes later, it was beginning to grow dark. Two women were waiting beside the car, but no one else was in sight. While Don opened the vehicle, the women pooled their resources to pay the bill. (They had just paid a veterinary bill, and were a bit strapped for cash.)

"I can't believe I did this. I just

# SAME SKILLS, LESS TIME, MORE PROFIT

ONE OF THE BEST WAYS TO BEAT THE ELECTRONIC COMPETITION IS TO JOIN IT THROUGH THE SALE AND INSTALLATION OF WIRELESS ELECTRONIC SECURITY SYSTEMS.

by J Joseph Moses, Ph. D.

**W**ireless security technology presents exciting growth possibilities for locksmiths who want to expand their businesses. The possibilities are exciting even if you don't want to expand but know that you should in order to keep up with the electronic revolution that is changing the face of locksmithing. The market for traditional keyed locks is shrinking with the spreading use of access control devices that use card swipe systems and digital locking devices. One of the best ways to beat the electronic competition is to join it through the sale and installation of wireless electronic security systems. (See photograph 1.)

Growing your business by making the transition to wireless alarm systems is a logical move for many reasons. First, if you're comfortable drilling into doors and jambs to install locking devices, you'll certainly be able to install wireless door/window sensors. (See photograph 2.) Second, you're used to making short work of the jobs you get. Unlike hardwire systems that can take several days to install, wireless security systems take only a matter of hours. And it's lucrative work. Michael Ellsberry of A&E Safe and Alarm in McMinnville, Oregon, puts it this way: "The average locksmith invoice is \$200 to 300, and you might have three to five calls a

day. With the wireless systems we sell, the average invoice is \$2200, and that's one technician doing one installation."

Installation time varies from job to job, and commercial installations are more time-consuming than residential ones. Michael recommends starting with residential applications because they're simpler. He adds—and here is a third good reason to expand your business with wireless—that a locksmith who offers locks, alarms, and monitoring to residential customers will retain more customers.

"It's a real competitive advantage to offer locks and alarms. The customers you get with locksmithing you keep with alarms and monitoring because people don't want to work with two or more different companies if they can work with one." The trust you build as a locksmith is the trust your full-service alarm company will be built on.

A fourth reason to go wireless: with access to great sales leads through your existing customer base, you can broaden your business by giving your existing locksmith customers great security service.

If all of this sounds too good to be true, rest assured there are pitfalls to avoid when getting into the security business. But the advantages—and the profits—make the effort worthwhile.

A wireless system allows you to expand your business without having to expand your territory. Going after more territory can be costly, considering that the farther you have to go to do a job, the more each job costs you in time and transportation expense. By offering your existing customers wireless security, you can increase your income without having to pay for territorial expansion.

Another advantage to starting with wireless security is that a trained installer can put in one large or two small residential systems a day. You can accurately predict what it will cost you to install the system and how long

it will take you to install it. Also, you don't have to invest a fortune in new tools in order to get started. If you can use a screwdriver, you can install wireless systems.

As for your customers, they'll be getting professional, reliable security that they can take with them if they decide to move. The locks or hardware security systems you install stay with the house, but a wireless system can go wherever the customer goes!

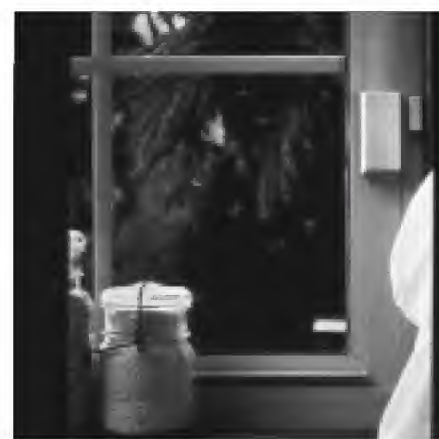
Another reason to learn the wireless security business is that systems have never been better. Keith Fisher from Keyth Security in Highland Park, Illinois has been in business for twenty years. He is a locksmith who had a thriving business for two years when he started selling alarms.

At that time hardwire was the way to go, but he soon realized that what he was really selling as a hardwire alarm company was labor. A lot of labor. And he soon realized that he couldn't make a living that way, so he switched to wireless and soon standardized on Interactive Technologies, Inc. (ITI) systems. His alarm business is now nearly triple what he brings in on the locksmith side.

Now he sells wireless technology instead of labor, and Keyth Security is



**1. Make the most of the skills you already have by learning to install wireless alarms.**



**2. Already using drills and screw drivers, the locksmith will have little trouble learning to install the sensor, transmitters and control panels of a wireless alarm.**



Continued from page 70

a highly successful company. "You used to have to learn one gadget at a time. It was an industry of gizmos," he said. The installer had to piece systems together out of parts made by different companies. Now systems are integrated and manufacturers like ITI supply all system components, from control panels, to sensors, to central station receivers.

Wireless systems are reliable, easy to use, and easy to install. Keith uses sensors to monitor the status of doors and windows, and air and water temperature; other sensors detect smoke, heat, or breaking glass. Passive infra-red (PIR) sensors signal the presence of intruders by detecting body heat. His customers pay him a monthly monitoring fee for the security and convenience of having their systems monitored by a central station.

Monitoring fees vary from community to community, but profits of \$15 per system per month are common. Multiply that times the number of alarm customers you have and you see how your revenues build. (See "No, I Don't Install Alarms," page 75 of this issue.)

For all the positives, Keith says there are two potential pitfalls for locksmiths thinking about getting into the alarm business: programming and bookkeeping. Both are linked to fear of or distaste for computers, but neither one should keep you out of the alarm business, he says.

"You don't have to know everything about electronics and computers to install wireless security systems. Once you go through about six installations, you'll get it. If you're comfortable programming your TV with a remote control, you can program the control panel."

The other pitfall is what Keith describes as the big hitch: keeping the books. He acknowledged that as a locksmith, keeping records is one of the toughest aspects of making the transition to the alarm business. He recommends keeping your alarm business separate from your locksmithing business, and forcing yourself to keep thorough books. Keeping in mind that there's not a business in the world that ever took a nose-dive because its books were too good, Keith's warning should be looked at as sound advice for any business owner.

Your alarm customers will expect the same kind of reliable personal service that your locksmithing customers expect, and using wireless systems makes it easy to keep your service standards high without costing you a fortune. Because wireless systems have never been easier to maintain, you can often walk a customer through the troubleshooting process over the phone.

System status checks can be conducted at the push of a button, and if a sensor is not working properly, the system will indicate which one it is. Individual point identification saves

you time and gives customers the information they need to get the system back in working order.

Going into wireless security can help you retain your current client base and customer loyalty at a time when your traditional locksmith customer base may be under attack by electronic competition. Look for the upcoming test article series on wireless security.

*The author is Senior Editor, Marketing Publications for Interactive Technologies, Inc.*

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# No, I Don't INSTALL ALARMS!

With a recurring annual revenue  
of \$6 billion dollars,  
where does the locksmith fit in?

A well established monitoring service can provide dependable service and profits for the locksmith. Pictured is Security Central, a 24 hour, UL and FM approved nationwide central station.

**"N**o, I don't install alarm systems." How many times have those words been spoken by a locksmith? Granted, from the outside, the alarm business may seem complicated. However, any locksmith should be able to expand into security systems with a little assistance simply because consumers perceive locksmiths as a security provider.

Alarm system sales are projected to be in excess of \$4.2 billion by the year 1997 (source: J.P. Freeman & Co.). Several different security industry indexes have estimated the annual recurring revenue, obtained through alarm monitoring at \$6 billion currently. What percentage of this money could belong to the locksmiths?

Let's make this question a little more personal. What percentage of that money could be yours? Let's look at some of the factors involved with alarm work and monitoring.

## What's Involved?

The first chance for profit comes in the alarm installation. This, by far, is the hardest and most tedious part of the alarm business. The average residential alarm installation runs around \$1500. Equipment cost to the installer is roughly \$400 to \$500 (less in many instances). An average

installation takes 1-1/2 to 2 days. This leaves us with roughly \$1000 to split over two days. Not too bad.

Of course, over a few years, these alarms and its components will need service. This is an open field as far as profit goes. The service calls for the average alarm company are double the typical locksmith's. Add parts and an hourly rate and you're doing well.

Probably the most lucrative part of alarm work, however, is monitoring. Monitoring offers the locksmith a continual income based on the "residuals," recurring revenue from his monitored customer base. In other words, for every customer you have monitored, you will receive a part of the customer's monitoring fee. The amount of that revenue is based on two things: the amount you charge the customer for monitoring, and the amount the central station charges you for providing service to your customers. Let's take a look at some of the figures.



by  
James R. Johnson

While the actual fee for monitoring depends greatly on the area you're serving, the national average for monitoring is \$20 per month per customer.

Fees that monitoring stations charge the locksmith, however, range from \$2 to \$6 per customer. It should be noted that a great deal of caution should be taken when prospecting a central station. The lower cost establishments may look appealing but often have hidden costs for after hour services and other important factors involved in monitoring your customer properly.

For making math easy, let's say the average fee to the locksmith is \$5 per monitored customer. Using simple math, we find that the customer pays you \$20 per month for monitoring. Of that \$20, you give \$5 to the central station. That means you have \$15 for yourself!

Now, \$15 per month is not a whole heck of a lot, even if it involves only a little paper work. But let's say over the period of one year, you collect ten monitored customers. Now you're receiving \$150 per month. And, of course, the numbers get more appealing from there.

Growing a monitored-customer base is not easy, but it is profitable. An ambitious small company may well



generate 250 customers inside of 5 years. (\$3750 per month for keeping paperwork!) A smaller locksmith should be able to generate eight to twelve customers a year. (\$600 to \$900 per month!) How fast you want to grow depends on your company's focus and ambitions.

#### Central Stations

Aside from getting good alarm training, the most crucial selection a locksmith company will make when entering the alarm field is that of an alarm monitoring company or central station. Because it's logistically impossible to adequately monitor your own customers, wholesale monitoring companies provide most of the services your customers will receive. And, of course, your selection will reflect on you.

A wholesale monitoring company should be Underwriters Laboratory listed as a minimum requirement. UL requirements insure a quality company because stringent criteria has been met. Requirements include: Central Station constructed to withstand three hours of direct fire, including the roof; access doors made of steel and electronically controlled; central station fully monitored inside

and outside by closed circuit television; all phone lines underground; computer equipment and power must be redundant in case of power outage or equipment failure; etc.

The central station that will help your business grow should provide sales literature, marketing assistance, and have full 800 telephone service. A central station not providing 800 service may offer discounted prices, but all alarm calls to the central station will be reflected on the customers telephone bill. Technical help should consist of troubleshooting, programming help and downloading capabilities. Additional monitoring services might include two-way voice or "listen-in" capabilities, a dealer based access program and a direct billing service. Look for a company that has been in business for a number of years, since many central stations open and close frequently. The central station business is expensive and length of time in business is a good indicator of stability.

Other considerations involved in entering the security business include equipment selection, licensing (if required), and training. A distributor

can help you select the type of alarm equipment you are going to install and can arrange for a manufacturer's representative to visit with you. Although equipment and training are sometimes regarded as the largest obstacle of entering the alarm industry, any locksmith who has installed electronic door strikes should have the tools needed to install an alarm system. Training should not be a problem, either. Most states have chartered branches of the National Burglar and Fire Alarm Association (NBFAA) and regularly sponsor NBFAA level I and II training classes. Additional information may be gained by attending trade shows on the local or national level.

Locksmiths interested in entering the alarm business should not wait any longer. Put aside any doubts and stop turning away business today!

The author is employed at Security Central, a UL and FM approved central station in Statesville, NC, in Dealer Development and Technical Assistance. He is also a NBFAA certified alarm instructor. For further information, please contact Security Central at 800-438-4171 **TEL**



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# LOCKING IN ON HOTEL PROFITS

WITH INSURANCE COMPANIES AND THE GENERAL PUBLIC  
FORCING HIGHER STANDARDS FOR HOTEL SECURITY, HOW CAN THE LOCKSMITH PROFIT?

**H**otel locks, according to the American National Standards Institute (ANSI), are only operative from the outside via the use of a key. On mortise locks and sets incorporating a deadbolt, an inside knob or thumbturn is used to lock a deadbolt and activates an occupancy indicator. Locking from the inside locks out all keys except an emergency key. And, both latch and deadbolt are retracted by the knob or lever on the inside. A knob set must have a deadlatch.



by  
**Tom Seroogy**

These locks are designed with the primary function of protecting the

resident, and assume that there is a competent level of key control. Unfortunately, with television news magazines such as 20/20 pointing out security problems, the standard mechanical lock is no longer practical. As a result, both the general public and insurance companies have placed a great deal of pressure on the both the hospitality and the hardware industry to incorporate measures to increase security.

These protective measures are now being approached from two perspectives and are including many established as well as new products and manufacturers. One perspective is the incorporation of mechanical and electronic access control systems to control the access and egress of individuals. These systems are heavily dependent on key (card) control, making key (or card) duplication very difficult. In most of these units, changing the code of an individual unit is very simple and sometimes, as in the case of the Winfield electronic unit, automatic. Many of these systems include audit trails, keeping a record of those entering the room.

The second perspective approaches protection from the inside. By offering locks that can be opened from the inside only, customers can lock their doors knowing there is no access from the outside. Two companies hot on the heels of this type of security

include JWT's The Original Door Stopper (See "Test Drive," The National Locksmith, February 1995), and Winner International's The Door Club.

Both products are installed and applied from inside the room and leave no access from the outside. Both are extremely strong and greatly reduce the chance of a forced entry while the room is occupied.

Now, how does the locksmith benefit? Just like any other security business can. The problem with the hospitality market is security - part of the solution is different and better locking technology. As locksmiths, we are privy to this technology and the resultant products.

In the not so distant past, there were only a few direct sales products that were made available to the hospitality market. Abloy's VingCard, up till now, has probably been the

**Continued on page 90**



**1. Winfield's Microkey is just one of several locksmith options for the hospitality market.**



**2. The Original Door Stopper by JWT (top) and The Door Club by Winner International are excellent low-end forms of hotel security the locksmith can offer.**



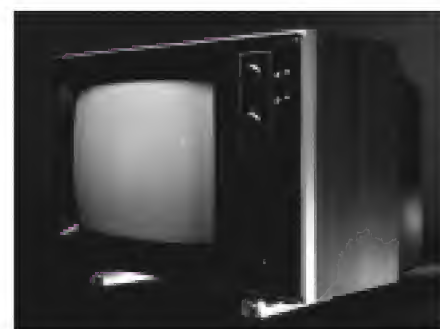
**Continued from page 87**

most prominent player and has been making direct sales to the larger hotel chains for years. Unfortunately, VingCard has not and is not interested in supplying parts or service information to the locksmith.

The consequence of this type marketing can play into the locksmith's hand, however. Companies following this strategy often are not interested in the numerous smaller operations that dot our country and cities. Also, because service is factory direct, many of the hotel chains are disenchanted when

they have to wait to be contacted by a factory authorized representative for service and parts.

Fortunately, the proliferation of the hotel security market has become very competitive and currently includes such companies as Winfield, IntelLock, and PDQ that offer an array of both electronic and mechanical readers and locking units for the hospitality market. (See photograph 1.) This large influx of participants in the hotel lock market is now open to locksmiths. And while the larger hotel chains have their own locksmith and



**3. Qualtec offers a number of inexpensive, high profit options for securing hotel security.**

security personnel and may be better served through direct sales, the smaller chains and privately owned hotel/motel chains are under the same pressure for increasing security. As a security professional, here's your opportunity.

But don't stop here, many smaller establishments are not ready to pay for the high tech lock. So, instead, offer them JWT's The Original Door Stopper or Winner International's The Door Club. These locks are inexpensive, easy to install and excellent profit generators. (See photograph 2.)

Still, there is another market for hotel/motels - protecting the contents of the room (i.e. the TV, remote control, telephone, etc.). Qualtec offers a variety of locks and cable fasteners for protecting these items. They are inexpensive, easy to install and do the job well. Plus, because installation usually involves several rooms the profit is sure to be worth it.

Contact Winfield Architectural at 800-938-7330.

Contact IntelLock at 510-225-0300.

Contact PDQ at their Lock Express 800-645-7455.

Contact JWT Corporation at 214-416-7174.

Contact Winner International at 800-527-3345.

Contact Qualtec through any American Lock & Supply distributor.

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See page 56 for details.

# TECHNITIPS

## Helpful hints from fellow locksmiths

Send in your  
tips and win.

### HOW TO ENTER

Simply send in your tip about how to do any aspect of locksmithing. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Write your tip down and send it to: Jake Jakubowski, Technitips Editor, **The National Locksmith**, 1533 Burgundy Parkway, Streamwood, IL 60107 or send your tips via E-mail to the E-mail address posted in the upper right hand corner of this page. Remember, tips submitted to other industry publications will not be eligible. So get busy and send in your tips today. You may win cash or merchandise. At the end of the year, we choose winners for many major prizes. Wouldn't you like to be a prizewinner in 1995? Enter today! It's easier than you think.

### BEST TIP OF THE MONTH

If your tip is chosen as the best tip of the month, not only do you win the All-Lock Foreign Auto Service Kits, but you also automatically qualify to win one of the many excellent year end prizes!

### EVERY TIP PUBLISHED WINS

Yes, every tip published wins a prize. If your tip is printed, you'll win \$25 in Locksmith Bucks. You can use these bucks to purchase any books or merchandise from The National Locksmith. Plus, every tip published will win a copy of the Technitip Handbook. (Please remember to include your complete mailing address - we cannot mail prizes to P.O. Boxes.)



by  
Jake Jakubowski

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- A-1 Security Mfg. Quickpull
- Major Mfg. HSK Safe Hinge Shim Kit

**Submit your tip and win!**

As you probably noticed with January's Technitip column, the yearly and monthly Technitip prize structure underwent a real change. Then in March, we added a \$50 gift certificate from American Lock & Supply, and I started sending out my own "Grabbag" prizes. This month, thanks to Strattec Industries, we're adding another monthly prize to the list....

A Strattec automotive pinning kit and jacket. Each month I'll send some lucky guy or gal the pinning kit and a certificate that they can send to Strattec and receive a really slick looking Strattec jacket! The jackets will be available in Small, Medium, Large and Extra Large sizes

So, send me your tip and maybe you'll be next month's winner of a Strattec pinning kit and jacket, or one of the other great prizes The National Locksmith gives away each month.

But, ya'll lissen heah now! Y' caint win if y' don' write down yor favorite ideah an' send it to me - ya'll heah?

### All-Lock Service Kits Winner Volvo Door Clip Removal

Specifically, this tip is for removing the door lock retaining clip on a 1985 Volvo, Series 200 without removing the door panel. It will probably work on other model Volvos also.

On the edge of the door, in line with the lock cylinder, you will find two screws. (See illustration 1.) These screws hold a box-type clip that keeps the lock cylinder in place. Normally, to remove the lock cylinder, you would have to remove the inner door panel and then remove the screws to release the clip, which would allow you to remove the cylinder.

Rather than go to all that trouble, I found that if you remove the two screws, and replace them with 4" long screws, you can push the clip off the cylinder. Simply thread the longer screws in by a half a dozen or so turns, then using both thumbs (on each screw), push the clip off of

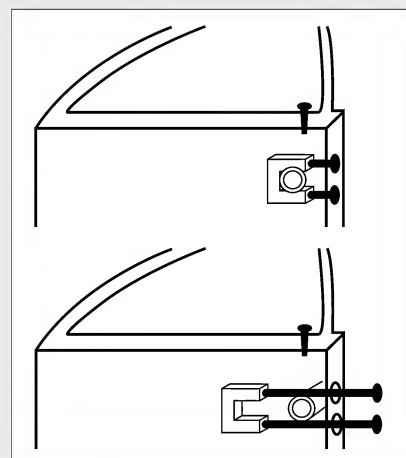


Illustration 1.



the cylinder. The longer screws will hold the clip and keep it from falling into the door panel.

Since there are no connecting linkages attached to the cylinder, the cylinder pulls out very easily for servicing.

After servicing or generating a key, simply replace the cylinder, grasp the two screws (use pliers if necessary) and pull the clip back in place. Remove the longer screws and replace them with the originals.

In my opinion, it sure beats taking down the door panel.

Kerry Burket  
Washington, DC

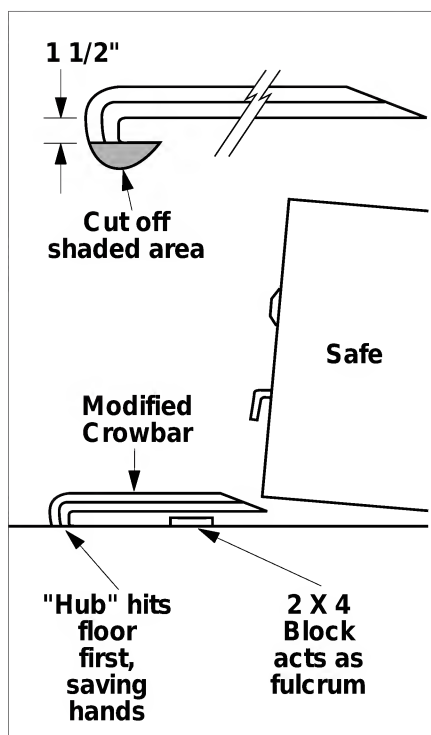
**Editor's Note:**

To the best of my knowledge, this will work on many Volvo models up to about 1988. After that, Volvo began changing lock cylinders and adding electronics on many models. As with any service procedure, this one should be used with caution. Always check out the job before attempting any procedure and then proceed with caution. When in doubt -- pull the panel so you can see what you're dealing with.

**Strattec Pinning Kit And Jacket Winner  
Safe Lift**

In the course of selling and servicing safes, I have to move a lot of heavy ones. Breaking these safes away from the floor where they have often sat for years can sometimes be difficult. The hard part is in raising the front of the safe high enough to get blocks under it so I can put my safe dolly in place to move it.

I thinking I have found the perfect tool for this job. I use a 4' crowbar with the claw cut off as shown in illustration two. If you try to use the



**Illustration 2.**

crowbar without cutting off the claw, you cannot get enough lift to insert a proper sized block under the edge of the safe.

If you just cut the bar off straight, you can catch your fingers under the end of the bar when you push down on the bar to raise the safe. By leaving a nub on the bar, as shown you build in protection for your fingers.

When you encounter a safe where you cannot get the lip of the crowbar under it to lift the front, use a length of 2x4 lumber standing on its end as a fulcrum and put your crowbar under the bottom hinge of the safe. You can now lift the safe high enough to put a screwdriver or other spacer under the edge to hold it in place while you move your bar down to the floor to lift the safe edge high enough to insert a block.

Using a 4' foot crowbar in this fashion, with a length of 2x4 as a fulcrum, gives you all the lifting power you need to raise the fronts on most safes that you will encounter.

Tom Gallian, CPL  
North Carolina

**American Lock & Supply Merchandise  
Certificate Winner  
Schlage Function Change**

One of my customers had a problem with employees leaving the back door of his warehouse unlocked and asked me to do something that would keep the door locked all the time.

The lock was a Schlage L9453 Mortise Lock, with an entry function and a thumbturn on the inside. I converted this lock to a function that serves as a storeroom lock with the added feature of a deadbolt!

I did this by removing the thumbturn that was supplied with the lock and installing a standard 1-1/8" mortise style thumbturn. To install the mortise style thumbturn, I had to cut a 1-1/4" hole in the inside escutcheon (The lockcase is already designed to accept a mortise cylinder) and installed an American Lock #9210 mortise thumbturn.

With the original thumbturn removed (I put one of my business stickers over the hole) and the mortise thumbturn installed, the outside lever is prevented from being unlocked.

Now this door is locked all the time (unlocked on the inside to comply with Life Safety Codes) and at night it can be deadbolted just by turning the mortise thumbturn.

One other thing. If the door is not already equipped with one, this is a good opportunity to sell the customer a door closer to make the door self-



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Ken Williams  
California

#### HPC Pistol Pick Winner Foreign Key Shim

I have used both the Framon #2 and the HPC 1200 code machines to originate keys. On each machine, the manufacturer recommends cutting just one side of a double sided key, and duplicating the finished key from this single-sided key.

Tip gauged keys like the 5-pin Ford keys, etc. are not a problem since enough of the blade on the cut side is left to rest on the vise of the machine.

However, on Toyota and Nissan keys (TR40, X123, etc.) the distance from the edge of the blade to the edge of the groove is only .085". This will not allow you to simply turn the key over and cut the other side on either the Framon or HPC machine.

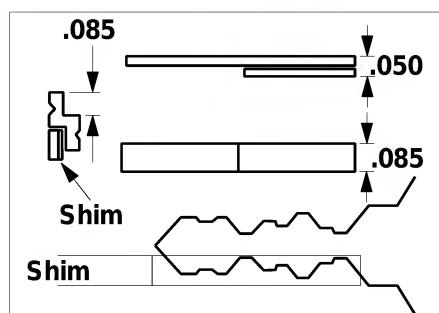


Illustration 3.

I make a shim by soldering a 1-1/4" piece of .085" stock on the top of a 2-1/4" piece of .085" stock. (See illustration 3.) I use this as a shim to compensate for the metal removed while cutting the first side, keeping the key from tipping while I cut the other side - on the code machine!

Leo Koulogianes  
Tennessee

#### Silca Rubber Headed Key Blanks Winner

#### Vault Opening Made Easy

One of my customers accidentally shut the door to a vault without anyone knowing the combination to the lock. The dial and lock had deteriorated through disuse and that precluded manipulation.

This door was a Diebold #177-24, 3-wheel combination lock with hardplate protecting the lock case from drilling.

Having previously had the opportunity to observe one of these

doors from the inside, I knew that there was an emergency handle to allow exit from the inside of the vault. So, I measured 10" up from the dial center and started a 3/8" hole.

After getting my hole started, I angled my drill to a downward 45° angle and drilled through door, and the back plate. Then using a 16"x3/16" rod I made, I reached through the lease handle and pushed. (See illustration 4.)

When I felt the emergency handle

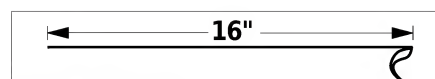
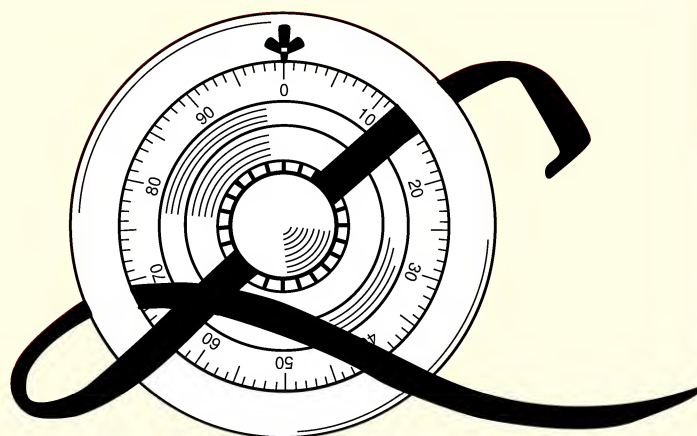


Illustration 4.

push inward (which releases the lock cam from the lock bolt) I turned the outside handle to open the vault door.

Keep in mind that there is hardplate in these doors, so you may have to adjust the angle of your drill attack.

Rick Sullivan  
Texas



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**Pro-Lock PK15 Professional Lock Pick Set Winner  
Shim Holder**

To make yourself an inexpensive shim holder, find a stiff, small diameter rod or tube about the same curvature of a standard shim. A length of wooden dowel or plastic tubing works well.

Then obtain a small rubber "O" ring which will fit tightly over the rod. Now, place the shim on the end of the rod and roll the "O" ring over the shim to hold it in place. You're now ready to shim open some locks.

I've found this to work perfectly and that it takes up very little room in my tool box since I store it inside a hollow follower!

Ted Swirsky  
E-Mail

**Sieveking Products EZ-Pull Gm Wheel Puller Winner  
Motorcycle Key Generation**

This month, I am beginning my third year as a locksmith and wanted you to know how much I appreciate your magazine.

I don't see many articles on motorcycles so I am forwarding this to you in the hopes that it may help

others who may get a call to service a 1991 Suzuki Fatana, Model 600. The code series is 6001 to 7000 and uses a SUZ12 keyblank and HPC code card MC71.

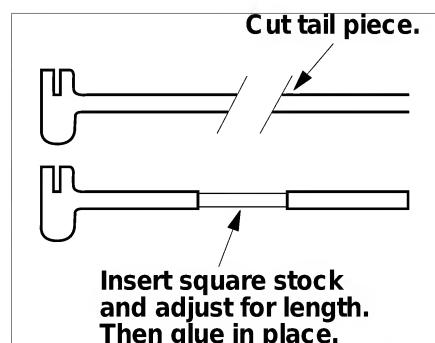
There are a total of seven cuts and four depths. The 1 depth is a no-cut. The seat lock and the gas cap lock do not have codes on them and are held in the cylinders by a spring loaded retainer wafer at the rear of the plug. Use a diamond or hook pick to depress the wafer and remove the plug.

First, remove the seat lock and make your key to fit spaces 2, 3, and 4. Second, remove the gas cap lock and make the key fit spaces 5, 6, and 7. The only cut left is the 1 cut which can be easily progressed.

William Allgood  
South Carolina

**A-1 Security Manufacturing Quickpull Winner  
Thick Door Deadbolt Modification**

I was called to install a single cylinder Kwikset deadbolt for a customer. When I got to the job, I found that the door the customer wanted the lock on was 3" thick! I knew I had a problem since I did not



**Illustration 5.**

have a Kwikset tailpiece long enough to work on such a thick door.

After thinking about it for awhile, I came up with the following solution:

I removed the standard tailpiece and cut it nearly (crosswise) in half. Then I used a piece of square stock that I had on the van to "lengthen" the tailpiece. (See illustration 5.)

The square stock that I used was a tight fit in the tailpiece, but I Krazy Glued the stock and tailpiece halves together to make sure they stayed that way! After six months, the lock still works perfectly!

P. Alphonso  
New York

**Major Manufacturing Safe Hinge Shim Kit Winner  
A Safe Fix**

I have a customer that has an old fire-rated safe that I have worked on several times in the past. And, when I have the back cover off the door, I've noticed that the insulation was crumbling and breaking away from the outer skin of the door.

Just recently, my customer called to say they could not get the door open. When I got there and ran the combination, I could tell the fence was dropping and the bolt seemed to be retracting properly. I suspected that maybe a piece of the insulation material had fallen and blocked the bolts since the handle appeared to turn slightly, but not enough to retract the boltworks.

I chucked a vibrator tool I made out of an old "C" clamp screw into my drill and began running it over the surface of the safe door and working the handle back and forth at the same time. After about a minute the handle retracted the bolts, and the door was open!

Needless to say, the customer had me fix the loose insulation!

Louis Woodson  
Arkansas



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**Continued from page 94**

**Grabbag Prize Winner  
Easy To Use Map**

Sometimes you have to use a street map. At 2 AM the street names are awfully small and hard to read by a flashlights feeble light.

So, I cut a street map into sections and went to Kinko's and enlarged each section to fit an 8-1/2x11 page plastic page protector. I indexed each section by using the existing index marks. I put the map index in the front of my notebook. I put the section index locators on the page tabs.

Now, all I have to do to look up the street is locate the index, go to the proper page tab and find the street! It's much easier - even in the daytime!

I also photocopy the motel and apartment pages of the phone book and put these copies in my notebook, I try to obtain maps of apartment complexes and local schools and institutions. I keep this handy reference next to my seat.

Steve Stanhope  
Texas

**Technitips Handbook Winners  
Code Reading Made Easy**

If you need to originate a key for a Ford Probe, roll the passenger window down all the way. Now, using a straight tool with a small piece of rag tied around it, clean the top of the door lock.

Now, you should be able to read the key code which is on top of the lock cylinder.

Wesley E. Sherrod  
Oklahoma

**Dor-O-Matic Fix**

Here's an easy way to fix a concealed Dor-O-Matic slide that won't let the lock cylinder turn the full 360°. Just find the small flat area on the side of the geared lug that fits over the lock cylinder tailpiece.

Install this lug with the flat side upward and you can turn the cylinder that extra degree or two to lock or unlock it. The flat area is difficult to see but, if you look closely, you'll find it.

It sure beats trying to adjust the locking rods .... and it's a lot quicker.

Ross Henderson  
South Carolina



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# BITS & PIECES

## Informative Tidbits for the Security Industry

**A**able Locksmiths has a lock pick upgrade available for the new 1995 GM 10-Cut system ignition locks. This adapter allows you to remove the lock cylinder without destroying it. The original pick kit called the '94 GM Nine Wafer Ignition Removal Kit, is available from Aable for \$60. The adapter upgrade kit modifies the '94 GM pick to work on the new '95 S/T and C/K Blazers and Suburbans and costs \$20. Contact Aable at 718-847-1377.



by  
**Tom Seroogy**

clarify a statement regarding the Maximum Adjacent Cut Specification (MACS) and correct an error that appeared in "Doin' It With Best/ Falcon, Part II," The National Locksmith, February 1995.

The correct application of the MACS specification is to subtract the biting designation of the smaller of the two adjacent cuts from the larger of the two adjacent cuts. The answer of this mathematical process is then compared to that manufacturer's specified MACS. If the answer is larger than the MACS specification, the key cannot be cut. If the answer is equal to or less than the MACS specification, the key can be cut and the combination is valid.

the key biting 365432 as the block master for illustration 2. The correct block master for should be 365412.

While I respect this reader's desire to remain anonymous, we do thank him and all other readers for keeping us on the straight and narrow. It's been stated and I state it again, The National Locksmith's philosophy isn't based on us knowing it all, it's based on all of us knowing. While writing a chastising letter for an error we've made may make one feel good, working together as a group of professionals accomplishes a whole bunch more. Again, thanks and keep those letters and comments coming!

A recent writer asked that we

The error pointed out is the use of



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Mark Bates Associates is offering some rather intriguing and effective lock bypass tools. Various tools designed for bypassing high security cylinders, electronic single door access control systems and Adams Rite style aluminum door locks are available. For those interested, contact Mark Bates Associates at 606-858-0811.

R and D Tool Co. sends notice regarding their 1994 GM 10-Cut ignition pickset in response to Strattec's (formerly Briggs & Stratton) change to the GM 10-Cut ignition.

Originally using tumbler positions 1 through 9, an interim change in July '94 eliminated the tumblers in positions 2 and 3. The final ignition design reincorporated tumblers in positions 2 and 3 as well as some changes to the tumbler and tumbler spring dimensions.

As such, the R and D 1994 GM 10-Cut pick can be used only on those locks up to the interim change. Because the tumbler cavities were filled, no pickset is available for locks produced during the interim period, late-July to September 1994. Locks

made after the interim period require R and D's 1995 GM 10-Cut pickset. The 1994 and 1995 pickset are not interchangeable.

For those locksmiths who desire, the 1994 pickset can be upgraded to the 1995 at a cost of \$60 plus shipping.

For more information on determining which pickset to use, contact a R and D distributor.

Hal Tibbitts, CML, California Association of Lock & Security Equipment Contractors (CALSEC) Legislation Committee Chairman, has notified me that the state of California has finally approved Title 16, chapter 8, section 832.28 of the California Code of Regulations.

In short, this long awaited action now separates locksmiths and security professionals from the broader group of general contractors and requires a separate test in applicable areas before being issued a license.

Anyone having questions on the change or about being grandfathered in can contact CALSEC at 619-273-9011, fax 619-273-4621.

We have two winners from our

March article question contest.

"Who's Cookin' With Padlocks" was an interview with antique padlock collector Tom Gallian. Readers were asked to identify the original and replica padlocks. (See page 66, photograph 9.)

The winner of "The National Locksmith Guide to: Antique Padlocks" is Leonard Durbin of Durbin Locksmith in Sapulpa, Oklahoma. Leonard correctly identified the locks on the right as the real things.

In "Up In Smoke," we asked why, in the olden days, fire fighters were required to wear a beard.

While we received many correct answers, our first respondent and winner of a "Technitips Handbook" is Aaron Pearson of Pearson's Locksmith shop. Aaron correctly answered that the beard was wet down and then used to cover the nose and mouth to protect against inhaling smoke.

Congratulations to Leonard and Aaron on their responses. Look for more surprise questions and prizes in The National Locksmith. **RL**



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# TAMING The Hardware Jungle

Typically one of the harder hardware items to adjust, vertical rod device service demands patience and a plan of action.

**A**djusting vertical rod exit devices can be an intimidating experience if not approached in a systematic manner. The worst thing you can do is to randomly start adjusting the rods. However, when taken in a logical progression or steps, it really is not all that difficult. The two most important tools for this job are: Patience and a Plan of Action.



by  
**Steve Gebbia**

## OVERALL OPERATION

Minor repairs such as strike alignment and tightening of assembly screws should be done at this time. The idea is to eliminate as many problems as possible. By doing this you will be able to see exactly where the real problem lies. Often, a few minor repairs are all that are needed. By checking the rest of the device first, you may just make your job a whole lot easier.

- The crossbar or touchbar must return smoothly and briskly to allow the vertical rods to operate properly. On a crossbar device, the crossbar and lever arms should act as one unit. This is because on most crossbar devices the return spring for the crossbar is located in the hinge case. If the screws attaching the crossbar to the lever arms are loose or missing, the bar will not return properly and will impede the smooth operation of the vertical rods.

- The top latch must properly engage the strike plate. Not only must the latch be captured properly, but the release lever (if present) must also be tripped as the door closes. Many fire rated devices have a release pin on the front surface of the top latch case. This engages a second strike plate which must also be

properly adjusted.

- Both the top latch and the bottom latch must operate smoothly without assistance from the vertical rods. If the latch returns slowly, disconnect the vertical rod from the latch. If it still returns slowly, it may need a thorough cleaning or possibly may need to be replaced. If, with the rods disconnected, the latch now returns briskly, the problem is in the adjustment of the vertical rods.

- The exterior trim should operate smoothly without binding. If the trim does not operate smoothly, it may prevent the vertical rods from returning properly.

## TYPES OF DEVICES

There are two styles of vertical rod devices: surface mount and concealed mount. This refers to the placement of the vertical rods - on the surface of, or concealed within the door. Surface mount devices can be found on almost any style of door - wood, steel, or aluminum. Concealed rod devices are usually found on aluminum doors, although they are also made for steel and wood doors. (See photograph 1.)

Vertical rod devices are also available as Panic Devices or Fire Rated Devices. Because fire rated

vertical rod devices are intended for use on fire doors, they will have some method of assuring that they latch every time the door closes. This can be a pullman style top latch (a latch without a hold-back function), a release pin on the face of the top latch assembly, or a soffit mounted latch. A soffit latch is a spring latch which is mounted in the soffit portion of the door frame. It is released by a push block mounted on the end of the top vertical rod.

A good understanding of how the device is intended to operate will help you tremendously. Although there are many different varieties of vertical rod devices, they all operate in a similar manner:

1. The crossbar or touchbar is depressed...
2. ...raising a traveler or transfer assembly that raises both rods simultaneously.
3. As the top rod is pushed upward, it retracts the top latch, as the bottom rod is pulled upward it retracts the bottom latch.
4. The top latch locks into a held-back position (except when a pullman style latch is used), holding both latches in the retracted position.
5. As the door closes, the top latch and release lever engage the strike plate...
6. ...releasing the hold-back and allowing gravity to pull the bottom rod downward, allowing both latches to extend and latch.

## FIND THE PROBLEM

Now that you have checked the overall operation and are familiar with how the device should work, take a minute to isolate what part of the device is causing the problem. The following list will help locate most common problems with vertical rod devices.

- Vertical rods not remaining retracted, bottom rod prevents



**1. A perfect example of concealed vertical rod exit devices. The touch bar is actually an integral part of these doors. Notice the two holes found at the top latch-side corners of each doors. These are the screws for mounting the top latches.**

door from closing.

If the top rod does not move far enough, the hold-back will not engage and the rods will not remain retracted. This will usually require adjustment of the top rod.

Although not as common, if the tip of the lever arm is worn it may not lift the rod fully.

- Top latch remains retracted, but bottom rod/ latch does not.

This is most common on concealed rod devices. The usual cause is improper adjustment of the bottom rod. The rod may not be retracting far enough to clear the threshold.

- Door does not latch at top or bottom.

More than likely this is a strike alignment problem. The top latch is probably not relocking. Check to make sure that the release lever is being tripped by the strike plate. This can also be caused by rods which are adjusted too short - preventing the top latch from extending fully.

- Door does not latch at top, but does latch at bottom.



**2. If the bottom latch is not operating, check for a dirt filled strike and/or an incorrectly adjusted rod.**

Since the door latches at bottom, the release lever is working properly. The top latch is probably not engaging the strike plate fully. A simple strike adjustment will usually solve this.

- Door latches at top, but not at bottom.

If the door latches at top, the top rod is probably adjusted fine. Most concealed rod devices and some surface rod devices have a deadbolt at the end of the lower rod instead of a

latch assembly. With this style of lower rod, it is imperative that the threshold strike is kept free of dirt. This is a very common problem with concealed rod devices. (The strike fills with dirt preventing the lower rod from extending.)

If there is a lower latch assembly, the most likely culprit here is a bottom rod which is adjusted too short - preventing the bottom rod/ latch from extending fully. (See photograph 2.)

- Cannot open door, both top and bottom rods not releasing when crossbar is depressed.

The most common cause of this is a top rod which does not travel far enough. Adjusting the top rod will often solve this. On rare occasions - usually when some well-meaning person has tried to adjust the rods - you may need to adjust both rods.

- Hard to open door, lower latch/ rod hangs on strike plate. Top latch works properly.

The bottom rod is probably adjusted out too far. It is also possible that the top rod may be adjusted out

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**3. A well intentioned maintenance person can cause havoc with vertical rod devices.**

too far. This would allow it to activate the top latch, yet not lift the lower rod high enough to clear the strike. (The hold-back on the top latch engages too soon.) Disconnect the top rod and if the lower rod still does not lift high enough, then the lower rod is the culprit. If the lower rod does lift high enough with the top rod disconnected, then the top rod is the problem.

- Hard to open door, top latch hangs on strike. Bottom latch/rod works fine.

Again, the top rod is probably not traveling far enough to release the top latch. Adjusting the top rod will usually solve this.

Keep in mind that it is possible for more than one of these conditions to be present at the same time. In this case, your best bet is to disconnect both rods and start from scratch. It sounds like this may take a lot of time, but in reality it will save you time and frustration. Since the operation of the lower rod depends upon proper adjustment of the upper rod, it is important that

you have a known correct adjustment to start. This is where having a plan and progressing in an orderly, logical manner really pays off.

#### EXAMPLES

The left door in photograph three was the victim of a well-meaning maintenance man. Unfortunately, he did not know what he was doing and both vertical rods were quite a ways out of adjustment. The door could not be opened without manually lifting each rod by hand. Also, once the door was open, they would not remain retracted. Since these are brand new, 12' high, hand-carved doors, the pastor of this church was not

pleased. (Each leaf cost over \$2,000!) The best choice here was to disconnect both rods and start the adjustments from the beginning.

The sequence to use is this:

1. Remove the case covers from both latches.
2. Loosen or remove the rod guide screws from both rods.
3. Disconnect lower rod.
4. Check adjustment of top rod and operation of top latch (with lower rod



**4. A disconnected top rod.**

disconnected).

5. If necessary, adjust top rod.
6. Re-check operation of top latch.
7. Check operation of lower rod and latch.
8. Adjust lower rod.
9. Check for proper operation of both rods with door open.
10. Re-install latch case covers and rod guide screws and check complete operation of device with door closed.

To actually adjust the rods, disconnect the rod from the latch and rotate it inward or outward. Each manufacturer uses a different method to attach the rod to the latch assembly. In some cases, you will be able to pull the rod away from the latch after removing the rod guide screws.

For other devices, you will need to remove a roll pin or other similar connector to free the rod. In any case, adjust the rod so that the latch retracts far enough to clear the strike plate and will still extend far enough to latch properly. (See photograph 4.)

Since the adjustment of the top rod affects the operation of the lower rod, it must be adjusted first. Once the top rod is operating properly, you can adjust the lower rod.

If this is a double door, block one door open while servicing the other. This will prevent any door alignment problems from interfering with your adjustments. Of course, if there is an alignment problem, this should be resolved before attempting to adjust the exit device.

If you encounter a device that you are not familiar with, manufacturer's catalogs are an excellent resource. In most you will find exploded view diagrams which make it clear how the device fits together and how it should operate.

Although there is a lot to think about when servicing these devices, you can save yourself a lot of time and sweat by understanding how the device is meant to operate. Preparation, patience, and a plan of action will tame these beasts of the hardware jungle.

**TNL**

## Field Accessories For The Automotive Professional

**W**hen was the last time you inventoried your operation's lockout tooling? You should take a good look at the sets you presently own at least once a year. New vehicles are constantly introduced throughout the year, just ahead of the equipment designed to handle all those models. Now that we are in the mid 90's, bigger lockout kits are the norm. It's not just the tools we need to handle the increase of new models but also the accessories that come with the newest tools.



by  
**D. Scott Selby**

### Just What Is A Professional Lockout System?

It's one that offers the proper tooling and accessories to efficiently execute the extensive variety of opening situations under the worse of conditions, such as bad weather and/or darkness of night. Large volumes of tools do not necessarily improve your abilities, especially if you're carrying obsolete equipment accumulated over the years. Although modern tooling often receives the credit, it is the support of the accessories and the role they play that is our focus.

### Technical Manuals

It all starts with the quality of the instruction manual, hopefully containing cutting edge information. Without a fully researched, current edition you will fall into the amateur habit of thrashing through the door cavity - a win, lose or draw approach. To lose is time consuming, pocket draining and damage causing. Without high quality, correct and concise information, a beginner hardly has a chance to avoid constant claims or at best wasted time at the job site. The full time lockout technician begs for the next edition's release and the equipment that goes with the newest update. They know how much more efficient they become with the

information on a particular model at their finger tips.

Stay clear of the stapled variety booklets often found on mobile tool trucks. Stapled manuals are for those stuck in the pre-80's with a flat bar tool that seldom applies to modern lock systems. If it's a question of money, bite the bullet and get at least a budget set with a current execution of the opening manual. Budget sets are limited, but at least the manual will tell you when you're lacking a tool required to do the job.

### Questions To Ask And What To Look For:

- Does the manual receive annual updating?
- Does it cover all model years? If it covers only one or two years, be prepared to buy the whole library at a whopping hit to your pocket.
- Does the manual offer clear, easy-to-follow illustrations?
- Will it open up and lay flat so your

concentrated center beam makes all the difference in the world when it comes to watching for the manual lock button move upon contact with the target mechanism you've been probing for. We all know once we see movement, the execution of the opening method is usually seconds from being complete. Get a good single lens head lamp. You'll wonder how you ever got along without one.

### Door Cavity Probe Lights

The first thing to understand is the fact that probe lights are limited during the daylight hours. They are often used more for viewing and avoiding plastic linkage connectors or loose wires within the door cavity. They are not needed for every model but the newer models of '90 and up do require their aid in many cases. A good manual will inform you when a probe light will save the job. If you try to use one on every model, you'll spend more time with the light than reviewing the step-by-step procedure. Lockouts still boil down to a "feel" one

**UNLIKE 15 YEARS AGO, CAR OPENING INVOLVES MODERN TOOLS, UP-TO-DATE INSTRUCTIONS AND ADEQUATE ACCESSORIES.**

hands are free to execute the assigned step-by-step procedure?

- Can the manual suction cup to a truck or van window?

Finally, it's very difficult to judge a book by its cover. Look for an extended money back guarantee offer, as it can take a while to evaluate its contents. Send it back if not satisfied.

### Night Work Accessories

Try reviewing any technical manual or door cavity at night without a good light. It's not easy! A flashlight will work, but there's nothing like a hands free head lamp. A good head lamp puts out peripheral light as well as a center beam. The brighter, more

only learns through experience, or through the use of a light.

How to choose a probe light: There are many categories of probe lights to choose from. There are plastic bodied models and there are aluminum bodies. There are even plug-ins available that connect to your vehicle's cigarette lighter. Portable probe lights, however, can be used for many applications other than car openings. Their sizes range from the smaller AA to the larger D size batteries. The AA probe lights lose their power and brightness very quickly due to limited storage capacity. The bigger D cell light will perform much longer with their increase of storage capacity.



That extra capacity is much needed especially throughout the cold winter months.

Look for models that allow the bulb to thread into the tip of the extension wand. If it doesn't, you will have to buy the entire wand every time the bulb goes bad. For auto door cavity viewing a 1/4" or less width bulb is required due to the tight door seals involved with the modern vehicles. Watch out for fancy bulbs with promises of burning brighter. This may be true, but they also burn hot. The heat causes them to easily break

when touched against the many obstructions within a door cavity or when used in a wet environment. The cool water quickly cracks the hot bulb. These bulbs are expensive to replace at about \$12 to \$17 each and they also drain the battery of a portable light at a much quicker rate.

The wand length is important as well. Anything less than 15" will not be enough extension for the work we do. Also, a suction cup attachment to the light body is a must for hands free operation.

### Window Wedges

Wedges create a gap around the window seal for the many tools required to open literally hundreds of different models produced. As with everything of useful value, there are many types available. There are fat and thin varieties, long and short . . . the fat wedges were great when windows were loose, but they should not be used on newer models. The combination of a fat wedge and tight window can result in a broken window, at an average cost of \$175 per incident. With that knowledge you'd be wise to toss all wedges that have any part of it over 1/2" thick. The thin wedges will work on both loose and tight windows.

### What About Lubricants?

Many use fluids to slick up the tools and weather-stripping. Just about any water with liquid soap solution mixture can safely be used. The addition of auto window washer fluid instead of water will prevent the solution from freezing as it contains an anti-freeze agent. This simple solution offers effective results when it comes to slipping through tight, dry weather-stripping and moldings. Everyone should carry a bottle in their lockout set.

### What About A Carry Case?

With the high volume of equipment needed to handle the wide range of models, you need a big case to keep it all organized. When your equipment is organized in one place, you'll always show up at the job site ready to go. If you're not organized, well . . . everything seems to go wrong from start to finish.

There are inexpensive cloth cases which do the job but seldom do they offer extra room for future items as the set is expanded through annual updating. Although some cases come with see through plastic panels, history has proven those designs offer a short life span. Choose or make your case accordingly.

It's amazing how far the industry has come since a simple flat bar tool could open them all, with no additional accessories needed. But, that was over 15 years ago, before the rapid upgrading of door designs began. Be prepared!

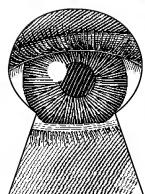
Scott Selby is the technical researcher of the Grand Master Z-Tool System. **TNL**



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# THRU THE KEYHOLE



## A Peek at Movers & Shakers in the Industry

**ATTENTION MANUFACTURERS AND DISTRIBUTORS:** Would you like your company and products to be profiled in Thru The Keyhole? Please call Managing Editor, Tom Seroogy at (708) 837-2044.

### IntelLock

New technology is upon us and we are seeing an ever increasing rate of growth in the introduction of new high tech products. One firm, IntelLock, has quietly positioned itself and its product line to be a major player during the last half of the decade.

IntelLock is truly a technology based firm and is fully dedicated to bringing an entirely new product opportunity to the lock hardware- and locksmith - industry. It is important to note that IntelLock was born in California's Silicon Valley. The founder, Tom Corder, and the Vice President of Research and Engineering, Dr. Gary Sturm, are both engineers with advanced degrees in science and engineering. Their commitment to the industry is evident by the new products that IntelLock is introducing this year - products that will set new performance standards for everyone to consider.

For example, IntelLock has just announced a new line of Digital Deadbolts designed for the residential and light commercial markets. The products utilize one 3 Volt lithium battery that measures just .60" in diameter by 1.3" long. According to Dr. Sturm, this battery is a direct indicator of IntelLock's lead in technology because the circuit operates at the lowest possible current. Also, lithium batteries are known for their performance in low temperatures and ultra long shelf life. Corder makes a point that the average home in the U.S. is sold every five years, which is a shorter period than the anticipated battery life for IntelLock's new technology. Our battery life will often be a "lifetime", Corder muses.

Corder and Sturm obviously believe that technology will be a major advantage in the future, and they have invested heavily in their belief. IntelLock develops products with an in-house team of mechanical, electronic, and software engineers. IntelLock's technical staff includes engineers and technicians with experience in designing life support systems for the aerospace program and the underwater diving industry, design of aircraft and missile hardware, design of advanced security and communication systems, design of consumer products, and of course, design of lock hardware. In fact, Lee Winslow, a former Quality Assurance Manager at USI Lighting and a 17 year veteran of Schlage Lock, recently joined IntelLock as the Vice President of Manufacturing.

Corder believes strongly that IntelLock can deliver a significant boost to the locksmith industry by providing cost effective digital entry. For example, Corder recalled that just last week ABC's national prime time television show 20/20 aired a feature segment on security in apartments. The show flatly stated that control of keys was the "Achilles heel" for apartment managers everywhere. It is common for apartment keys to be copied and then later used for illegal entry, and the entire industry of apartment owners and managers are at risk.

The new Digital Deadbolt, Corder notes, is perfect for apartment use for two reasons: First, it prevents accidental lockouts because the tenant has to lock the bolt when leaving, and second, the apartment manager does not give out a key but instead issues a code that the tenant can use and change at will. Corder believes this is a perfect marketing opportunity for the locksmith.

Interestingly, IntelLock has significantly reduced the number of locksmith distributors it sells so that

the company can provide superior service to a few, rather than poor service to many. In 1994, sales to the locksmith channel increased by 110 percent over 1993, even though the firm did not attend any of the industry trade shows. This year, IntelLock will attend many of the national and regional shows and is committed to growing in a steady, if not spectacular, fashion. In the bottom line, IntelLock is bringing the locksmith innovation in low cost lock hardware that is not available from other manufacturers, and they are here to stay.

### STRATTEC Has Mission For Locksmiths Who Dare!

Pssst! Hey, you with the magazine in your hands. No, no. Don't look up! Keep reading. It could pay off big for you!



Memorize these passwords: "STRATTEC is the new Briggs & Stratton Technologies."

That's right, Briggs & Stratton, the old standby, the original equipment manufacturer of quality locks and keys for most of the automobiles made in the good ol' U.S.A. and the supplier of replacement parts, has changed its name to STRATTEC SECURITY CORP. STRATTEC for short. And the company wants you as an agent, a partner working in the field, somebody to deliver the goods.

But remember — STRATTEC is the new Briggs & Stratton Technologies. Pass it along. Call your STRATTEC operative, er, your service parts distributor. Give him the



passwords; he'll know what to do. He'll give you a secret code number that could lead you to the loot!

Your mission is to take that code number and write it on the reply card you'll find attached to the STRATTEC ad in this magazine from now through June. Fill out the card and slip it in the mail. You don't even need to add a stamp. It'll get where it's supposed to; the post office is in on this, too.

The really big payday comes in July, during the ALOA show in Orlando, Florida. A drawing will be held from the cards sent in by field agents who turned in their secret code numbers. And there will be 126 winners!

The grand prize, worth \$1,000, will be a deluxe tool chest filled with STRATTEC™ products. Twenty-five first-prize winners will get \$250 worth of STRATTEC valuables, the kind of stuff you can really use out there. You know, top-of-the-line locks, keys and pinning kits. One hundred other winners will receive STRATTEC merchandise bearing the company logo.

Not a bad haul for simply sharing the passwords, STRATTEC is the new Briggs & Stratton Technologies, with your distributor and dropping a card in the mailbox. And you don't have to be snooping around the ALOA show to win. Your card will be put into the drawing as long as you've put your secret code on it.

But even the agents, er, locksmiths who don't get lucky in the drawing can be winners by investigating some of the deals available through their service parts distributors. Ask your distributor about STRATTEC specials available during April, May and June. It's time to stock up on products you know you're going to need on future calls.

This special STRATTEC operation will peak with maneuvers and group surveillance around the STRATTEC booth at ALOA. Find us at the show, and we'll have further instructions about how to complete your mission and collect even more booty.

But every agent, including those without the secret code and those who can't make it to ALOA, can profit from their work with STRATTEC. To help make it so, headquarters will continue to provide definitely-not-secret technical assistance and other value-added services. Keep your eyes open;

STRATTEC will always be somewhere nearby.

And remember: STRATTEC is the new Briggs & Stratton Technologies. Pass it on.

## Teaming Together For A Safer America

A national survey recently commissioned by Kwikset and executed by the Chicago-based research firm Market Facts shows that Americans place home security at the top of their list of personal concerns.



**Bill Phillips, A Safer America Spokesperson and home security expert, helps install a new deadbolt with 3-year-old George Taylor looking on.**

You don't have to tell that to 79 year-old Jessie Morris of Gastonia, North Carolina whose house has been broken into four times in the past but now feels secure enough to sleep at night because of her new high security Titan deadbolt locks courtesy of A Safer America and locksmith Mike Martin of Lytten Sales and Repair. According to Ms. Morris, "I think it's wonderful. I feel safer at night now. There was a time before when I couldn't get to sleep at all."

Jessie's good night sleep would not have been possible without Mike's professional expertise. Mike teamed with A Safer America when it hit his town to install and supervise the installation of deadbolt locks on 50 of the homes most in need of additional protection.

As Kwikset's survey results indicate, 70 percent of the respondents also claim that having a deadbolt lock makes them feel safer, yet 37 percent report that their current residence did not have any deadbolts installed when they purchased it. Interestingly, approximately one-third

of the respondents surveyed report that they still don't have deadbolts on back, side or garage doors although these are popular targets for burglars.

A Safer America is a public education program funded entirely by Kwikset Corporation that generates public interest in home security. Through the A Safer America program, free educational materials are distributed with the assistance of the crime prevention branch of the local police department and neighborhood volunteer groups. The materials consist of a home security handbook and tips form that provide helpful tips on how you can better protect your home and family. The recommendations are based on input from the A Safer America Board of Advisors, a group comprised of this nation's leading experts on crime.

Since good doors and properly installed deadbolt locks are considered to be the first line of defense against burglary, high security Titan deadbolt locks donated by Kwikset are installed on needy homes that are chosen by the local police department. To insure a professional installation, local locksmiths such as Mike Martin are included in the program. While the media exposure was good for his business, Mike was quick to point out "that being involved makes you feel good when people who could not afford my services get the benefit of the extra protection possible through installation of top quality Titan locks. The publicity surrounding A Safer America will ultimately be good for my business because it makes people more aware of the need to help protect themselves."

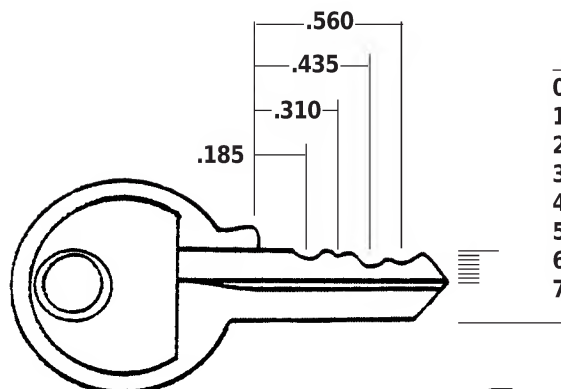
Kwikset launched A Safer America in June of last year in Spokane Washington and on the strength of its initial success, was expanded to Charlotte, North Carolina in November. In both cities, the media turned out in force to cover the event and now additional cities around the country are spreading the word about a Safer America. To date, newspapers in over 1000 cities have carried the A Safer America message, generating over 150 million impressions with articles in several hundred newspapers, over 800 radio segments and 20 television news shows. Every homeowner exposed to the information becomes a potential buyer

**Continued on page 116**



# KEY CODES

## Master Large Pin 1-3200



Profile

### Depths

0	- 0.275
1	- 0.260
2	- 0.245
3	- 0.230
4	- 0.215
5	- 0.200
6	- 0.185
7	- 0.170

### HPC 1200 CM

Code Card - C35  
Cutter - CW1011  
Stop - Shoulder

### Framon

Cut start - .187"  
Cutter - FC8445  
Cut to cut - .125",  
Spacing Block #1  
Stop - Shoulder

### Key Blanks

Master 1K  
Ilco 1092  
Silca M52  
Jet M1

### Compatible Codes for this Chart

1-3000	10N1-1000
10T01-1000	2001-2750
34H601-1000	35H401-850
5001-5500	6001-6750
8001-8500	A101-2000
E1-700	J 2001-2150
J 3U00-J 5U49	U1-3250
W1-3500	X5001-5500
10L01-1000	10R01-18R00
1U0-25U9	3201-4000
35H251-300	4201-5000
5501-6000	7001-8000
9001-10000	A5501-6400
E2001-3000	J 301-1250
0301-950	USN1-600
X2001-3000	

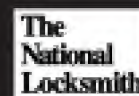
### Readers:

As you can see, a great number of these codes are unknown. If you know the bitting for any of these codes send them in! We'll share the results with you.

Write us or E-mail to: [natlock@aol.com](mailto:natlock@aol.com)

1001	0	1035	3203	1069	0	1103	2236	1137	0	1171	4330
1002	3344	1036	4213	1070	0	1104	0	1138	0	1172	3144
1003	4214	1037	0	1071	0	1105	0	1139	0	1173	0
1004	1232	1038	2502	1072	3113	1106	0	1140	0	1174	1333
1005	3544	1039	4223	1073	4334	1107	0	1141	0	1175	6566
1006	0	1040	0	1074	0	1108	4324	1142	0	1176	1341
1007	4312	1041	1124	1075	0	1109	3220	1143	0	1177	0
1008	0	1042	0	1076	4012	1110	0	1144	0	1178	2301
1009	1332	1043	0	1077	0	1111	0	1145	1314	1179	0
1010	4243	1044	0	1078	0343	1112	0	1146	0	1180	0
1011	0	1045	0	1079	4220	1113	4136	1147	0	1181	2323
1012	0	1046	0	1080	6263	1114	4240	1148	0	1182	0
1013	4344	1047	4210	1081	0	1115	6153	1149	0	1183	4566
1014	0	1048	0	1082	4024	1116	0	1150	0	1184	2241
1015	4340	1049	4341	1083	0	1117	0	1151	0	1185	0
1016	0	1050	4113	1084	0	1118	0	1152	0	1186	0
1017	3120	1051	0	1085	0	1119	0	1153	0	1187	1334
1018	0	1052	0	1086	0	1120	0	1154	0	1188	0
1019	4314	1053	4230	1087	4201	1121	0	1155	0	1189	0
1020	4321	1054	0	1088	0	1122	0	1156	0	1190	0
1021	3123	1055	0	1089	0	1123	0	1157	2142	1191	0
1022	0	1056	4323	1090	0	1124	0	1158	0	1192	2013
1023	4343	1057	3341	1091	6563	1125	0	1159	0	1193	0
1024	0	1058	0	1092	0	1126	0	1160	0	1194	0
1025	0	1059	2322	1093	0	1127	2031	1161	0	1195	0
1026	0	1060	4123	1094	0	1128	0	1162	0	1196	0
1027	0344	1061	0	1095	0	1129	0	1163	0	1197	0
1028	4226	1062	0	1096	4122	1130	0	1164	0	1198	0426
1029	0	1063	0	1097	0	1131	0	1165	0	1199	0
1030	4322	1064	4221	1098	3023	1132	0	1166	0	1200	0
1031	0	1065	0	1099	2334	1133	0	1167	3340	1201	0
1032	2104	1066	4233	1100	0	1134	0	1168	4131	1202	0
1033	4342	1067	0	1101	0	1135	0	1169	0	1203	2133
1034	0334	1068	0	1102	0	1136	0	1170	0	1204	0





## Master Large Pin 1-3200

1205	2131	1238	2531	1271	0	1304	0	1337	0	1400	0
1206	0	1239	0	1272	0	1305	0	1338	0	1401	0
1207	0	1240	0	1273	0	1306	0	1339	0	1402	0
1208	0	1241	0	1274	0	1307	0	1340	0	1403	0
1209	0	1242	0	1275	0	1308	0	1341	0	1404	0
1210	0	1243	0	1276	1233	1309	0	1342	4115	1405	0
1211	0	1244	3234	1277	0	1310	0	1343	0	1406	0
1212	0	1245	0	1278	4323	1311	0	1344	0	1407	0
1213	0	1246	0	1279	0	1312	0	1345	0	1408	0
1214	0	1247	0	1280	0	1313	0	1346	0	1409	0
1215	0	1248	0	1281	0	1314	0	1347	0	1410	0
1216	4265	1249	0	1282	0	1315	0	1348	0	1411	0
1217	0	1250	4333	1283	0	1316	0	1349	0	1412	0
1218	0	1251	0	1284	0	1317	0	1350	0	1413	0
1219	0	1252	4320	1285	0	1318	4125	1351	0	1414	0
1220	0	1253	1312	1286	0	1319	0	1352	1245	1415	0
1221	0	1254	0	1287	0	1320	0	1353	0	1416	0
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1226	0	1259	0	1292	2234	1325	0	1358	0	1421	0
1227	0	1260	4133	1293	0	1326	4035	1359	0	1422	0
1228	0	1261	4304	1294	0	1327	4423	1360	3241	1423	0
1229	2314	1262	0	1295	0	1328	5222	1361	0	1424	0
1230	4140	1263	0	1296	0	1329	0	1362	0	1425	0
1231	2021	1264	0	1297	1445	1330	0	1363	0	1426	0
1232	0	1265	0	1298	0	1331	0	1364	5225	1427	0
1233	2140	1266	3223	1299	0	1332	0	1365	0	1428	0
1234	5144	1267	0	1300	0	1333	0	1366	0	1429	0
1235	2134	1268	0	1301	0	1334	0	1367	0	1430	0
1236	0	1269	0	1302	0	1335	0	1368	0	1431	0
1237	0	1270	0	1303	0	1336	0	1369	0	1432	0



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1370	0	1433	0
1371	0	1434	0
1372	0	1435	0
1373	0	1436	0
1374	0	1437	0
1375	0	1438	0
1376	0	1439	0
1377	0	1440	0
1378	0	1441	0
1379	0	1442	0
1380	2215	1443	0
1381	0	1444	0
1382	0	1445	0
1383	5352	1446	0
1384	0	1447	0
1385	0	1448	0
1386	0	1449	0
1387	0	1450	0
1388	0	1451	4424
1389	0	1452	0
1390	0	1453	0
1391	0	1454	0
1392	2403	1455	0
1393	0	1456	0
1394	3135	1457	0
1395	0	1458	0
1396	0	1459	0
1397	0	1460	0
1398	0	1461	0
1399	0	1462	0



Continued from page 110

## Master Large Pin 1-3200

1463	0	1492	0	1521	0	1550	0	1579	0	1608	0
1464	0	1493	0	1522	0	1551	0	1580	0	1609	0
1465	0	1494	0	1523	0	1552	0	1581	0	1610	0
1466	0	1495	0	1524	0	1553	0	1582	0	1611	0
1467	0	1496	0	1525	0	1554	0	1583	0	1612	0
1468	0	1497	0	1526	0	1555	0	1584	6453	1613	0
1469	0	1498	0	1527	0	1556	0	1585	0	1614	0
1470	0	1499	0	1528	0	1557	0	1586	0	1615	0
1471	0	1500	0	1529	0	1558	0	1587	0	1616	0
1472	0	1501	0	1530	0	1559	0	1588	0	1617	0
1473	0	1502	0	1531	0	1560	0	1589	0	1618	0
1474	0	1503	0	1532	0	1561	0	1590	0	1619	0
1475	0	1504	0	1533	0	1562	0	1591	0	1620	0
1476	0	1505	0	1534	0	1563	0	1592	0	1621	0
1477	3352	1506	0	1535	0	1564	0	1593	0	1622	0
1478	0	1507	0	1536	0	1565	0	1594	0	1623	0
1479	0	1508	0	1537	0	1566	0	1595	0	1624	4232
1480	0	1509	0	1538	0	1567	0	1596	0	1625	0
1481	0	1510	0	1539	0	1568	0	1597	0	1626	0
1482	0	1511	0	1540	0	1569	0	1598	0	1627	0
1483	0	1512	0	1541	0	1570	0	1599	0	1628	0
1484	0	1513	0	1542	0	1571	0	1600	0	1629	0
1485	0	1514	0	1543	0	1572	0	1601	0	1630	0
1486	0	1515	0	1544	0	1573	0	1602	0	1631	0
1487	0	1516	0	1545	0	1574	0	1603	0	1632	0
1488	0	1517	0	1546	0	1575	0	1604	0	1633	0
1489	0	1518	0	1547	0	1576	0402	1605	0	1634	0
1490	0	1519	0	1548	0	1577	0	1606	0	1635	0
1491	0	1520	0	1549	0	1578	0	1607	0	1636	0

## NATIONAL AUTO LOCK SERVICE, INC.

**National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.**

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## Master Large Pin 1-3200

1637	0	1701	0	1765	0
1638	0	1702	0	1766	0
1639	0	1703	0	1767	0
1640	0	1704	0	1768	0
1641	3446	1705	0	1769	0
1642	0	1706	0	1770	0
1643	0	1707	0	1771	0
1644	0	1708	0	1772	0
1645	0	1709	0	1773	0
1646	0	1710	0	1774	0
1647	0	1711	0	1775	0
1648	0	1712	0	1776	0
1649	6346	1713	0	1777	0
1650	0	1714	0	1778	0
1651	0	1715	0	1779	0
1652	0	1716	0	1780	0
1653	0	1717	3526	1781	0
1654	0	1718	0	1782	0
1655	0	1719	0	1783	0
1656	0	1720	0	1784	0
1657	0	1721	0	1785	0
1658	0	1722	0	1786	0
1659	0	1723	0	1787	0
1660	0	1724	0	1788	0
1661	0	1725	0	1789	0
1662	0	1726	0	1790	0
1663	0	1727	0	1791	0
1664	0	1728	0	1792	0
1665	0	1729	0	1793	0
1666	0	1730	0	1794	0
1667	0	1731	0	1795	0
1668	0	1732	3241	1796	0
1669	0	1733	0	1797	0
1670	0	1734	0	1798	0
1671	0	1735	0	1799	0
1672	0	1736	0	1800	0
1673	0	1737	0	1801	0
1674	0	1738	0	1802	0
1675	0	1739	0	1803	0
1676	0	1740	0	1804	0
1677	0	1741	0	1805	0
1678	0	1742	0	1806	0
1679	0	1743	0	1807	0
1680	0	1744	0	1808	0
1681	0	1745	0	1809	0
1682	0	1746	0	1810	0
1683	0	1747	0	1811	0
1684	0	1748	6352	1812	0
1685	0	1749	0	1813	0
1686	0	1750	0	1814	0
1687	0	1751	0	1815	0
1688	0	1752	0	1816	0
1689	0	1753	0	1817	0
1690	0	1754	0	1818	0
1691	0	1755	0	1819	0
1692	0	1756	0	1820	0
1693	0	1757	0	1821	0
1694	0	1758	0	1822	0
1695	0	1759	0	1823	0
1696	0	1760	0	1824	0
1697	0	1761	0	1825	0
1698	0	1762	0	1826	0
1699	0	1763	0	1827	0
1700	0	1764	0	1828	0



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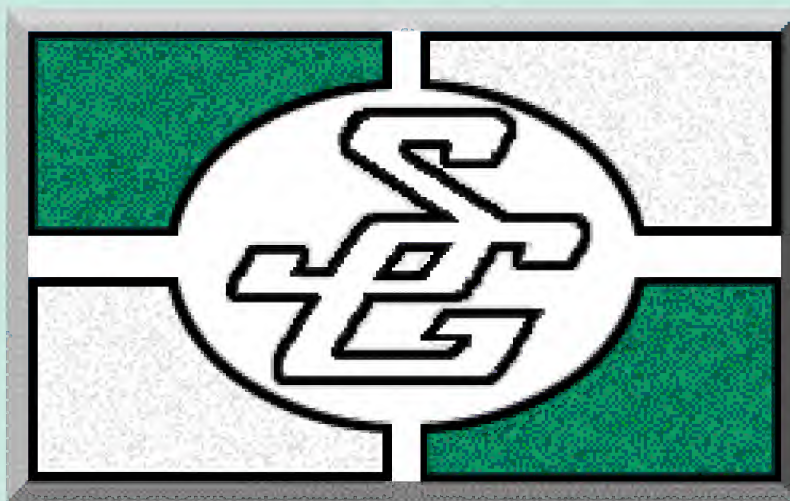
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## Master Large Pin 1-3200

1829	0	1858	0	1887	0	1916	0	1945	0	1974	0
1830	0	1859	6235	1888	0	1917	0	1946	0	1975	0
1831	0	1860	0	1889	0	1918	0	1947	0	1976	0
1832	0	1861	0	1890	0	1919	0	1948	0	1977	0
1833	0	1862	0	1891	0	1920	0	1949	0	1978	0
1834	0	1863	0	1892	0	1921	0	1950	0	1979	0
1835	0	1864	0	1893	1365	1922	0	1951	0	1980	0
1836	0	1865	0	1894	0	1923	0	1952	0	1981	0
1837	0	1866	0	1895	0	1924	0	1953	0	1982	0
1838	0	1867	6243	1896	0	1925	0	1954	0	1983	0
1839	0	1868	0	1897	0	1926	0	1955	0	1984	0
1840	0	1869	0	1898	0	1927	0	1956	0	1985	0
1841	0	1870	0	1899	0	1928	0	1957	0	1986	0
1842	0	1871	0	1900	0	1929	0	1958	0	1987	0
1843	0	1872	0	1901	0	1930	0	1959	0	1988	0
1844	0	1873	0	1902	0	1931	0	1960	0	1989	0
1845	0	1874	0	1903	0	1932	0	1961	0	1990	0
1846	0	1875	0	1904	0	1933	0	1962	0	1991	0
1847	0	1876	0	1905	0	1934	0	1963	0	1992	0
1848	0	1877	0	1906	0	1935	0	1964	0	1993	0
1849	0	1878	0	1907	0	1936	0	1965	0	1994	0
1850	0	1879	0	1908	0	1937	0	1966	0	1995	0
1851	0	1880	0	1909	0	1938	0	1967	0	1996	0
1852	0	1881	0	1910	0	1939	0	1968	0	1997	0
1853	0	1882	0	1911	0	1940	0	1969	0	1998	0
1854	0	1883	4341	1912	0	1941	0	1970	0	1999	0
1855	0	1884	0	1913	0	1942	0	1971	0	2000	0
1856	0	1885	0	1914	0	1943	0	1972	4343		
1857	0	1886	0	1915	0	1944	0	1973	1411		

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## THE LIGHTER SIDE

Continued from page 68

grabbed my billfold out of my purse, and we went inside," the car owner explained. "I never go anywhere without my billfold. It has my credit cards and everything in it," she added. "I didn't even think about the keys."

Don handed her a free key card (one of our little public relations gestures that gets them to come into our shop later). "I always carry a spare door key in my billfold for emergencies," he said. "You may want to consider doing that, too."

The woman's companion looked at Don with a blank stare. Her mouth slowly drooped open, then snapped shut. Reaching for her friend's billfold, she opened a back pocket and extracted a spare door key.

"I forgot all about this, until he mentioned keeping an extra for emergencies. Remember, a couple of months ago, when I took your car to go fill it up, and you gave me your billfold to pay for the gas?"

"Yes."

"Well, I accidentally locked up the keys and had to call the locksmith. When he gave me a free key card, I ran by his shop and had a spare made right then and put it in your billfold. I guess I forgot to tell you."

"You mean I've had this key in my billfold, all along?" the car owner asked. "I'm not believing this!"

"They didn't know whether to laugh or cry," Don said when he was telling me of the incident, later. "I really hated to charge them for the call, under the circumstances."

"I know what you mean, but you did make the trip out there, and you did open the vehicle. It wasn't your fault she didn't know she had a spare key."

"You're right. I guess that goes back to what Ted says: 'You think education is expensive, wait 'til you see the price tag on ignorance!'" **TNL**

## THRU THE KEYHOLE

Continued from page 108

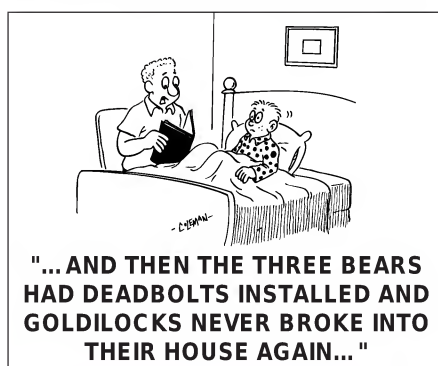
of security products and a user of the services of a trained security

professional.

"A Safer America is part of Kwikset's continuing commitment to crime prevention," states Bob Shortt, vice president of marketing at Kwikset. "It's part of our corporate responsibility to give something back to the community that has real lasting value."

A Safer America will continue to march across America with six additional cities scheduled for local market execution in 1995.

For more information about A Safer America write to: A Safer America, 4020 Birch Street, Newport Beach, CA. 92660, or call 714-851-6320. **TNL**



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# TEST DRIVE



**Taking Industry Products for a Spin Around the Block**

## LEVERON® LEVER CONVERSION

**PRODUCT:** Leveron door knob lever conversion by Lindustries, Inc., P.O. Box 295, Auburndale, Massachusetts, 02166 (for orders). Or phone 617-237-8177. Cost to locksmith is \$8 for 1 Leveron handle and 1 installation wrench, \$8.50 for same package in a gift box, and \$14.64 for a set of 2 handles and 1 installation wrench. Adapters for conversion of the Simplex Unican A and large ball Russwin R knobs are an additional \$.60 for each handle. Pricing does not include shipping. (See photographs below.)

**PRODUCT DESCRIPTION:** The Leveron lever adapter is a high density, light weight polyethylene plastic lever that can be attached to most residential and commercial door knobs in order to meet ADA requirements. The standard unit consists of 1 lever handle, 2 natural rubber gaskets, 1 split-ring (for fastening), and 1 installation wrench. A small screw is also included for the optional Maximum Grip installation. Special split-rings are available for conversion of the Simplex Unican A and Russwin R large ball knob.

**FRIENDLINESS:** As far as lever conversions and adapters go, the Leveron is simplest to use, by far. Place the non-handed lever over the knob using the correct gaskets (proper use of gaskets is included in instructions), assemble split-ring over knob neck and use the installation wrench to screw split-ring into back of lever. Voilà, it's on. To insure against the lever loosening by the counterclockwise turning of a left side lever installation, the optional Maximum Grip installation is achieved by using the proper gaskets and installing a small screw that holds the split-ring in place.

**FEATURES:** The unit itself is made of polyethylene, a strong and resilient plastic used by appliance and

automotive manufacturers. The light weight of the lever reduces the chance of damaging internal knob parts. Its resiliency makes it very hard to damage.

Being made of a thermo-plastic, the Leveron is noncorrosive, does not tarnish, and is unaffected by salt air, humidity or solvents. Despite its plastic composition, the unit complies with standard fire tests and has been successfully tested in homes, public buildings, medical facilities and even a prison. The Leveron is VA approved.

Aside from the functional aspects, Leveron is offered in six different colors: Almond, Satin Brass, Silver Metallic, Dark Bronze, Cardinal Red and Hi-Glow.

As an added touch we received the Hi-Glow for this test. Hi-Glow is an FDA approved phosphorus-cent color that allows the unit

to glow in the dark after being exposed to light and has an off-white natural color under normal light. The glow-in-the-dark attribute of this unit allows better night visibility for both children and adults.

### COMMENTS AND SUGGESTIONS:

We installed our test unit onto one side of a Schlage F series knob in a matter of two or three minutes. The weight of the lever did not cause any sagging or partial latch retraction. The instructions are very clear and easy to read and follow.

**CONCLUSION:** There are three factors that make the Leveron a perfect locksmith product. First, as time goes on, there is an ever increasing demand for ADA compliance. Second, these units have excellent profit potential. As locksmiths, we can offer our customers an extremely low cost alternative to replacing all knobsets



**DESCRIPTION:**  
Door knob lever conversion

**COMMENTS:**  
Fast, easy-to-use, and inexpensive.

**TEST DRIVE RESULTS:**  
While making a customer happy, the Leveron Lever Conversion is a quick profit maker that makes it worth keeping a few in stock.

**The Leveron adapter by Lindustries, Inc.**

with more expensive leversets. Third, they're fast and easy to install. Under these terms, there's no reason a locksmith shouldn't take advantage of the Leveron. **TNL**